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Volume 50
Number 1

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Medical Journal

For Doctors and their Patients

he Editor Presents
The Associate Editors

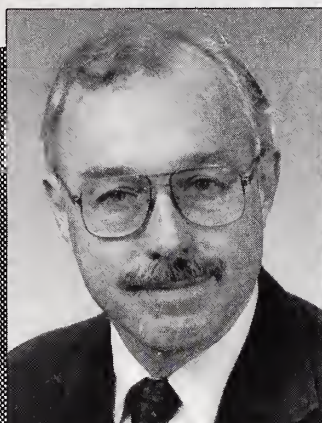
so in this issue
Let Us Now Praise...

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and the First Department
of Surgery at the
University of North Carolina
Erle E. Peacock, Jr., M.D.

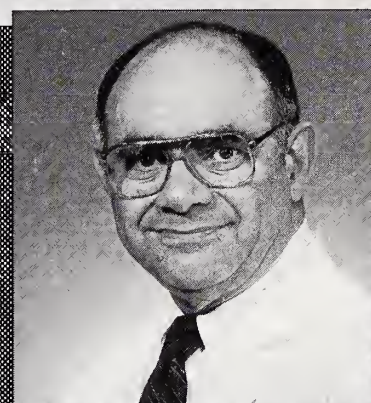
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a Physician Who Made
a Difference

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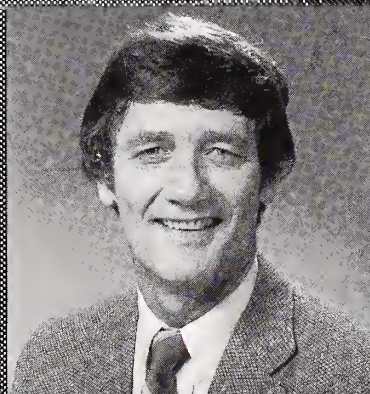
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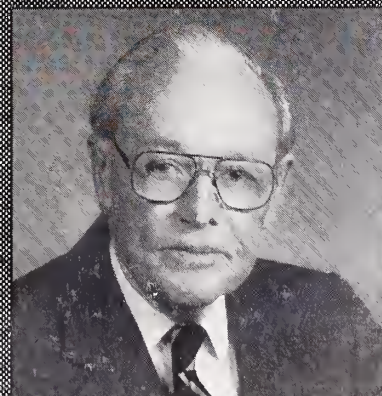
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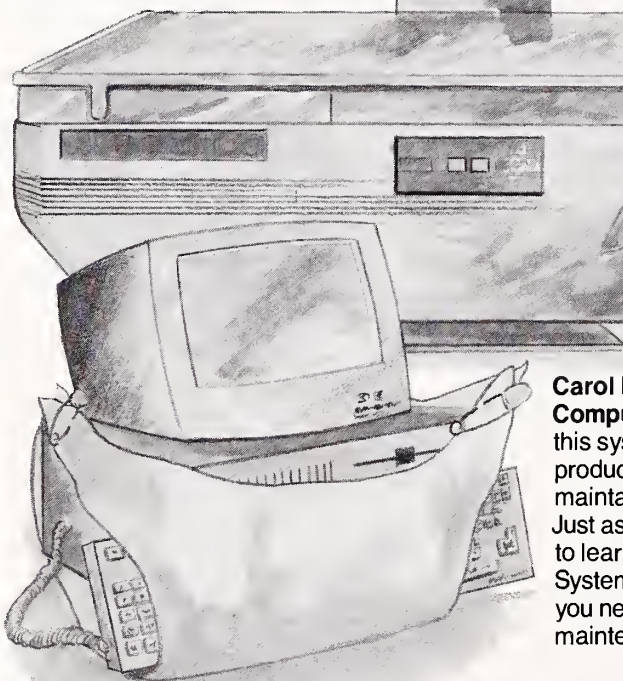
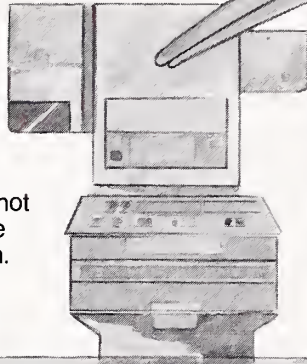
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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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The Vexing Prognosis of Unexplained Syncope (CT and Holter Negative)

A Community Hospital Study

Edward V. Spudis, M.D., and Ellen K. Parker, R.N.

There are many well-designed studies of syncope which suggest that it is a benign illness in the absence of heart disease. Attacks are often dramatic and cause such emotional and physical trauma that attending physicians are unsure what constitutes an adequate investigation.^{1,2} This is a prospective study of hospitalized patients with unexplained syncope episodes who were found to have normal 42-hour Holter cardiac monitoring and normal cerebral computerized tomography (Holter-CT negative).

Methods

For six months records from the emergency department (ED) and all hospital admissions in a 900-bed-community hospital in Winston-Salem were studied for "all varieties of collapsing, fainting, falling out, blackouts, and abrupt limpness." We collected data on 281 patients who were then subdivided into 31 diagnostic categories¹ based on the investigative studies performed and on the emergency physician's conclusions. We learned that there were many conflicting definitions of postural and vasodepressive syncope and that there are many difficulties in assigning emergency room patients to precise categories. We therefore concentrated on that worrisome group of patients with seemingly uncomplicated, unexplained syncope, whose attacks were abrupt and dramatic enough to justify admission by their attending physician.

Over 18 months we found 62 such inpatients culled from 120 referred as potential candidates. Nothing in the routine laboratory tests or chest x-rays explained the attacks in these patients. Paroxysmal coughing, collapse with micturation, recent changes in medication, and recent emotional trauma

were causes for rejection. Fifty-five of these 62 patients fell or would have fallen if not assisted. Patients with probable epilepsy or with an electroencephalogram (EEG) suggesting epilepsy were not included. We felt that rejecting all patients with any symptom or sign of possible epilepsy would create an atypically pure group. Therefore a questionable episode of urinary incontinence or a tongue contusion was not grounds for rejection if there were no other epileptic stigmata. We were curious to see if these patients with signs of possible epilepsy would develop definitive epilepsy during follow-up. Since the diagnostic yield from EEG in syncope patients is low, EEG was not a requirement.¹

All 62 patients had a 24-hour Holter monitoring of the heart and a computerized tomographic study of the head. Since a high percentage of people have cardiac irregularities if recorded long enough, we allowed patients into the study if the interpreters (all cardiologists) used the word "normal" or said that the "irregularity seen does not explain syncope."³ Monitoring described as borderline or of uncertain significance led to rejection (see below). The infused CTs were all read as normal or showing atrophy without features to correlate with syncope.

During interviews with the patients we concentrated on questions about premonitory symptoms, clues to the intensity of the unconsciousness, attacks in first degree relatives, and features that might indicate occult epilepsy. We collected health data for at least 12 months on those who survived hospitalization. The maximum follow-up was 30 months, and minimum was one month in a patient who died. The mean follow-up of those 60 who left the hospital was 18.6 months. The follow-up data were obtained by mail or by telephone at intervals of one to two months. The average patient age was 61. Thirty were female. Ages ranged from 15 to 87. (One 24-year-old was lost to follow-up after 10 months when he entered military service.) Since driving regulations that apply to syncope are imprecise and difficult to interpret, patients were not usually given any admonitions by their attending physicians, and consequently did not complain during the follow-up interviews.⁴

From Forsyth Memorial Hospital, Winston-Salem. Dr. Spudis is also Clinical Professor of Neurology at Bowman Gray Medical School, Winston-Salem. Reprint requests to Dr. Spudis, Neurophysiology Laboratory, Forsyth Memorial Hospital, Winston-Salem 27103.

Results

Deaths: four (6.7%) of 61 patients died during the follow-up. A 77-year-old female was found dead in bed seven days after admission. One 77-year-old female died with massive myocardial infarction after a syncope-free 17 months. A 70-year-old male died from hypernephroma one month after admission. A 66-year-old male, who had described 10 to 15 collapsing episodes over three months, prior to entering the study, came to the emergency room six months later with nausea, vomiting, and vertigo. A fresh CT then showed bilateral subdural hematomas. During that six-month interval he had not re-injured his head, thus the subdurals were presumably a delayed response to the earlier contusion.

Thirty-two of 61 patients had more than one attack prior to admission. Seventeen of these 32 had premonitions or auras most often described as dizzy sensations. Patients with no prior attacks were less precise in describing auras. Judging the duration of unconsciousness was even more difficult.⁵ Forty-three believed they were completely unconscious for five minutes or less, and nine felt that unconsciousness was longer than five minutes but less than an hour. The others felt that unconsciousness was incomplete. We could not correlate duration or quality of unconsciousness with the likelihood of future attacks. Twelve patients were in the potential epilepsy category. Only two of these 12 had more attacks of any sort; none were epileptic attacks.

Eleven of 61 patients had additional attacks. Nine had episodic dizziness with vague weakness impossible to classify. Patient education was an important result of hospital admission since no subsequent fractures or lacerations were reported. One of the two patients who developed subdurals was known to have had at least one subsequent collapsing attack after leaving the hospital. He may have jostled his brain then. One patient came to coronary bypass surgery, and two were given permanent cardiac pacemakers after subsequent Holter monitoring was diagnostic. The pacemakers were helpful. One 55-year-old female with weekly attacks was evaluated at three medical centers with no convictions concerning etiology after 30 months. She never injured herself and never had an attack near any physician. We assumed that her episodes were psychogenic.

Discussion

This study of prognosis in unexplained syncope was initiated in 1984 to determine if a prospective community hospital cohort would also confirm retrospective studies suggesting that isolated syncope is seldom ominous.^{6,7} Our 61 patients without neurologic, cardiac, or metabolic illness were probably similar to those also culled from larger groups by Kapoor, Eagle and others.^{8,9} Our results, however, suggest that unexplained syncope as delineated by our criteria is not a totally benign phenomenon. Even after many syncope-free months patients worried about possible injuries at work, falling when alone, or having an attack while driving. Even though unex-

plained syncope is a relatively uncommon admission diagnosis, we believe such patients will continue to attract attention because of the controversial significance of ventricular ectopy in healthy subjects, the temptation to use increasingly refined brain imaging techniques, and the fascination of unexplained dramatic events.¹⁰

Electrocardiographers (EKG), like electroencephalographers, have difficulty assigning unusual rhythms and wave forms to precise clinical events.¹¹⁻¹³ The problems defining the parameters of important ventricular tachycardia are similar to the EEG controversies over the mathematical dimensions of interictal wave forms supposedly pathognomonic of epilepsy. Conservative electrocardiographers tend to label brief runs of ventricular ectopy as "abnormal, with uncertain clinical significance," thereby eliminating such patients from an unexplained syncope group. To qualify for the category of unexplained syncope in this study, brief ectopic runs had to be labeled "not a cause for syncope." Such slight variations in phraseology could account for considerable variation in the percentage of syncope patients assigned to an "unexplained" group and also in the percentage ultimately receiving pacemakers. A follow-up study of syncope patients after three 24-hour monitoring sessions might be of interest.¹⁴ Event cardiac recorders that allow longer recording periods will be a next useful development.

Since approximately seven percent of Americans develop epilepsy in a lifetime, it seems that criteria used to define epilepsy would also greatly influence the outcome of any study of unexplained syncope. None of our patients developed a seizure disorder, even though 12 had possible signs of epilepsy at the time of admission. Our decision not to require an EEG for admission to this study was based on the correct supposition that few patients would develop epilepsy.⁸ Ambulatory EEGs would have been negative or would have produced perplexing false positive wave forms.¹⁵

The rationale for obtaining CTs of the head in the initial evaluation of patients with serious syncope has been thoroughly addressed.^{2,6} The yield is usually low, but two of our patients did develop significant delayed subdural hematomas, which in one instance was fatal. The rationale for repeating tests after a recurrent attack should be stringent, but the possible detection of life-threatening, treatable lesions certainly justifies repetition in some cases.

Obviously Holter-CT negative syncope patients may be reassured but not dismissed. We predict a continued controversy between medical economists and physicians impressed with the precision of the rapidly improving newer and more costly brain imaging techniques. □

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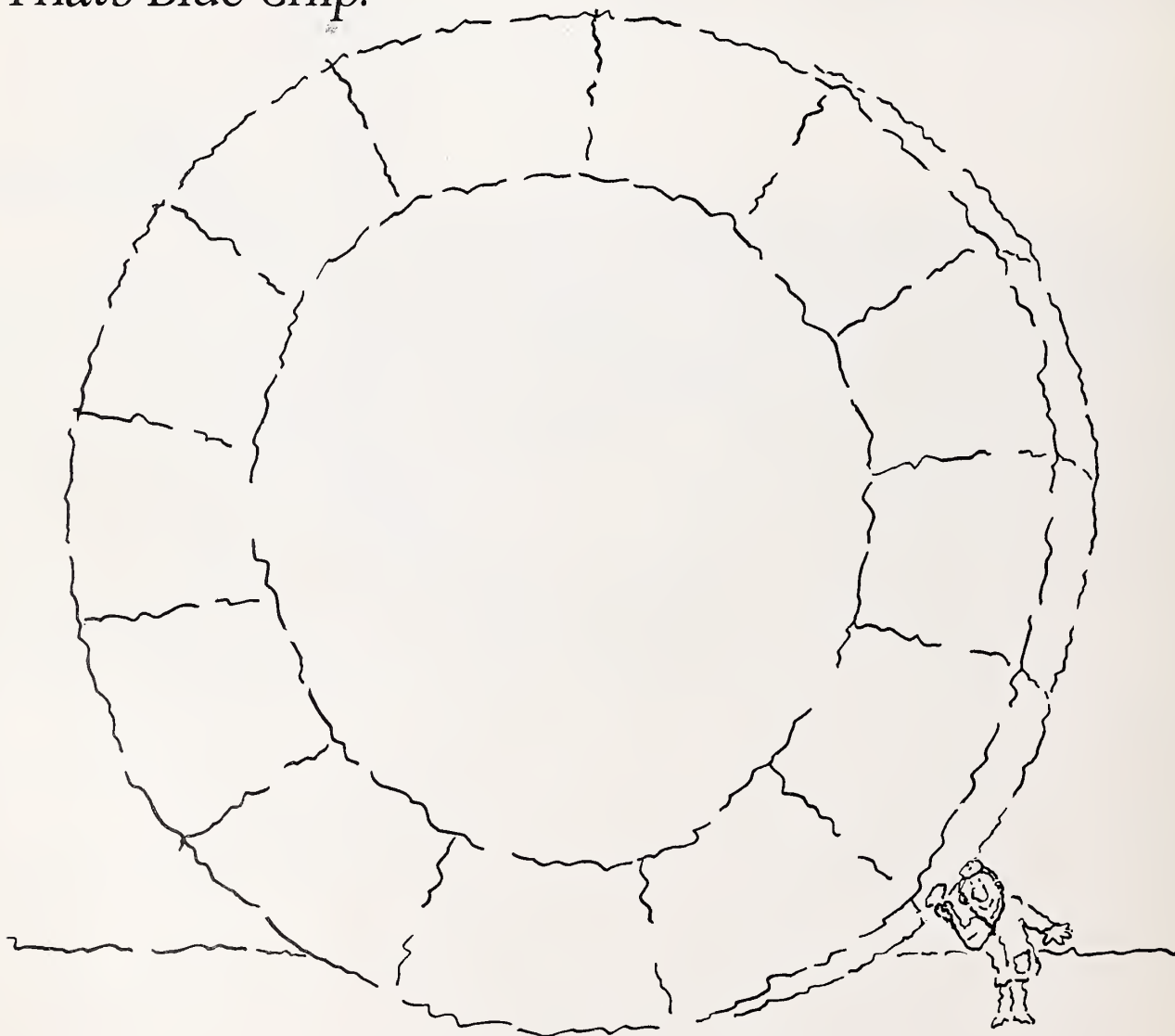
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The Editor Presents The Associate Editors

The editor has broadened the editorial staff to facilitate communications between the journal, its authors and readers. We now have six associate editors, each with his own area of expertise.

We present in this issue their pictures, their addresses and telephone numbers (page 14), and their areas of special interest.

They are available to you for information and initial processing of manuscripts.

Eben Alexander, Jr., M.D.

Dr. Alexander is a neurosurgeon who has had a distinguished career in teaching, practice and administration at the Bowman Gray School of Medicine. He is editor of *Surgical Neurology*, one of three neurosurgical journals in North America. He is helping to stir up a great variety of meaningful papers, particularly from his immediate environment in Winston-Salem. In his role as president he keeps us informed of the activities of the Board of Medical Examiners of the State of North Carolina.

Dr. Alexander: I was born in Knoxville, Tennessee, September 14, 1913, attended the University of North Carolina where I graduated AB 1935. I obtained my medical degree at Harvard in 1939 and took my training at the Peter Bent Brigham and Children's Hospitals in Boston, interrupted by over four years in the service in World War II. I completed my training in neurosurgery in Boston at the Brigham and Children's Hospitals and then served at the Toronto General Hospital before coming to Winston-Salem as Head of Neurosurgery. I served as Head of Neurosurgery from 1949 to 1978 and continued to serve on the active operating faculties in neurosurgery until 1984. During that time I was also Chief of Staff for 20 years, and during that time, also, I was a member of the editorial board of the *Journal of Neurosurgery* for 10 years. I became editor of *Surgical Neurology* in 1985,

and continue to serve as its editor.

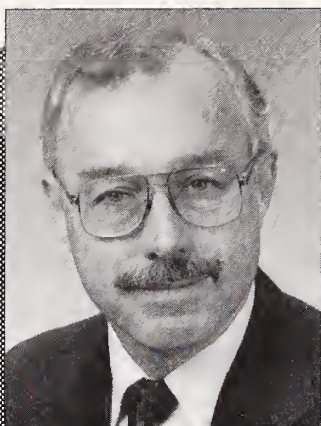
I have been interested in the North Carolina Medical Journal for many years; having known Dr. Stead, who was just ahead of me at the Brigham Hospital in Boston, I corresponded fairly freely with him. He asked me to serve as an associate editor, and I have been very pleased to do so.

William B. Blythe, M.D.

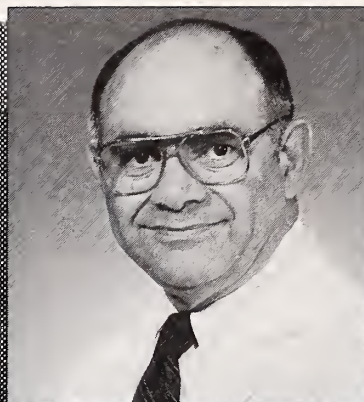
William Blythe is a native tar heel with a zeal for North Carolina, its people, its institutions, and more particularly for the University of North Carolina at Chapel Hill. He is a wise internist and nephrologist who reviews manuscripts related to the kidney, hypertension, dialysis, ethics, and North Carolina history. He likes to write, and the journal enjoys publishing his writings.

Dr. Blythe: I was born in Huntersville, a small town in North Mecklenburg County, where my ancestors first arrived from Pennsylvania around the first part of the eighteenth century. Early in my life I became imbued with the love of North Carolina, and I suspect that this has been the impetus for the zeal that I have for North Carolina and its history.

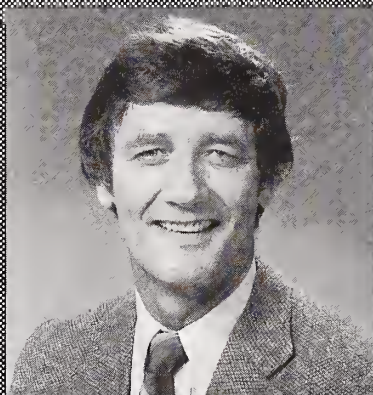
I came to Chapel Hill as an undergraduate and have stayed here ever since with the exception of two years at Washington University School of Medicine in Saint Louis, two years at the Walter Reed Army Institute for Research,



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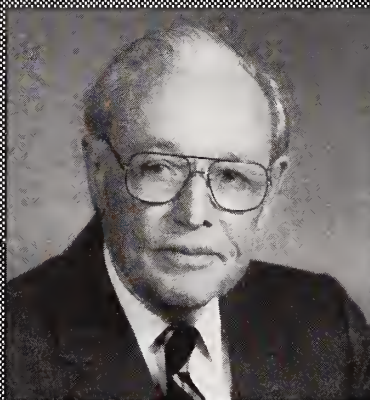
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and six months at the Charing Cross Hospital Medical School in London. I have never thought seriously about living anywhere else but Mecklenburg County.

I have been interested in writing since I was a small boy. My father and my oldest son are writers; thus my contribution to writing has been as a gene carrier!

I became associated with the journal as a member of the Editorial Board at about the time Dr. Stead became the Editor. My involvement became more intense when Dr. Stead asked me to seek out some short articles and to write a few myself from Chapel Hill.

I am proud of the Journal and honored to be part of it.

Edward C. Halperin, M.D.

Dr. Halperin is a pediatric radiation oncologist with a background in economics and a strong interest in medical ethics and history. He edits our book review column, "Carolina Physicians Bookshelf," for which he says contributions are always welcome; he also is interested in receiving manuscripts from prospective authors in the fields of oncology, organ transplantation, medical history, medical ethics and public affairs related to medicine.

Dr. Halperin: I was born in Somerville, New Jersey. I received my Bachelor's degree in Economics from The Wharton School of the University of Pennsylvania and my medical degree from Yale University. I served as an intern in Internal Medicine at Stanford University Medical Center in California and completed my residency, and a year as Chief Resident, in the Department of Radiation Medicine of the Massachusetts General Hospital. In 1983 I joined the Faculty at Duke where I am currently an Associate Professor in the Division of Radiation Oncology.

My principal clinical interest is pediatric radiation oncology. I serve on the steering committees for neuroblastoma and germ cell tumors of the Pediatric Oncology Group. My laboratory projects include the use of irradiation in experimental models of heart, liver, kidney, and small bowel transplantation as well as several projects involving experimental brain tumor radiotherapy. I have also published in the fields of medical history and medical ethics.

I became involved with the North Carolina Medical Journal after interviewing Dr. Stead for a medical history project documenting hospital and medical society desegregation in North Carolina.

F. Maxton Mauney, Jr., M.D.

Dr. Mauney is a cardiovascular surgeon, past president of Buncombe County medical society, active leader in the state

medical society in several capacities, a developer of the surgical PA track, a supporter of office computerization and a constant critic of the Journal. Dr. Mauney is willing to receive manuscripts in the fields of general surgery, thoracic surgery, and cardiac surgery.

Dr. Mauney: I happen to come from a very modest background and, in fact, was the first person in my family for several generations to complete a formal college education and the first in many generations to go on and earn an advanced graduate degree. Because of this I suspect I have been more appreciative of the opportunities I have had, the mentors and role models I met during my early formative years, and the sacrifices my working parents made to help me get started in college.

When Dr. Stead was initially taking up his responsibility as the editor, he asked me to review a manuscript by a senior physician in Asheville. I not only reviewed the manuscript, I literally rewrote it, and forwarded it to Dr. Stead. Although he never published the article, he must have appreciated my efforts, as he asked me if I would consider being his "Western North Carolina Associate Editor."

Francis A. Neelon, M.D.

Dr. Neelon is a most versatile Associate Editor. With an interest in literature and writing, he has become our "poetry editor." He created the "Names and Faces of Medicine" column for the journal, has played a key role in soliciting many of our scientific and patient-oriented articles, and continues to be committed to the journal's success.

Dr. Neelon: I was born in Massachusetts, just north of Boston—as a result, all Southerners will tell you that I "talk funny." I have been in Durham for more than 25 years—long enough that all my kinfolk will also tell you that I "talk funny" (e.g., that I use words like "kinfolk").

I came to Duke as an intern in Dr. Stead's Department of Medicine in 1962 and have remained at Duke since (except for three years of "military service" at the NIH in Bethesda). A good deal of my youth was spent at the bench in the biochemistry lab, but in later years I have gravitated more and more toward the clinic. I began professional life as an endocrinologist but subsequently learned enough that I nowadays function largely as a general internist. At present I serve as Medical Director of Duke's Combined Medical Specialties Unit, an inpatient program designed to help patients with combined medical and psychiatric problems.

When Dr. Stead mentioned, in 1983, that he would become the Editor of the NCMJ, I signed on with him—for the opportunity to work closely with him and for the chance to indulge my fancy for editing and writing. It has been a great and continuing pleasure.

Walter J. Pories, M.D.

Dr. Pories is a surgeon and an artist whose research interests include nutrition. His first article for the journal was on nutrition and dietary management in the elderly. He is a colonel in the U.S. Army Reserve, past president of the North Carolina Chapter of the American College of Surgeons, and currently a Governor of the national organization.

Dr. Pories: I am not at all sure how I came to be involved with the North Carolina Medical Journal. There were certainly better candidates. I would guess that Tom Wolfe, Charles Kuralt, Garret Weyr, Manly Wade Wellman, Denis Rogers, Lee Smith, and Reynolds Price all refused to take the job so you had to settle for a Bavarian immigrant. A barely literate one at that.

Most of my research has been done in the area of nutrition with a special emphasis on trace element nutriture, the effect of nutrients on the growth of tumors, and morbid obesity.

I look forward to working with the journal. Should be fun. □

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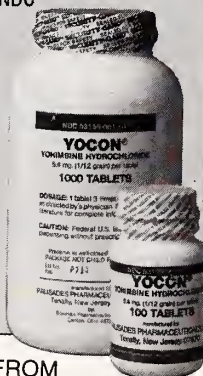
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A Hard Day's Knight

Zinc Phosphide Poisoning

Ronald B. Mack, M.D.

How often after reading something non-contemporary have you been known to declare, "They don't write stuff like that anymore." Such a story is "Sir Gawain and the Green Knight,"^{1,3} arguably the greatest single Arthurian legend (that's the King, not the movie) in English. The author is unknown but is thought to have been a contemporary of Chaucer who lived in the 14th Century. The story involves chivalry, romance, bravery, revenge, temptation to adultery and ultimate moral victory for the good knight. This brave young fellow, in order to uphold the dictates of chivalry, had to face death by another knight in order to fulfill a sworn obligation. On his journey to his destiny he stops at a castle for a few days' respite (the local Motel 6 had no vacancies) and is recurrently tempted to perform the "beast with two backs" by his host's beautiful wife. He refuses to "make nice" with her but accepts a sash which will protect his life in hand-to-hand combat. He lives happily ever after, but the Knight's Committee almost makes him return his gold medal because he used a controlled substance—the sash.

Speaking of good knights, I had a bad one lately, bad night, that is. None of us enjoys being awakened in the middle of the night but it's part of who we are. Recently such a call entered my consciousness and the caller, a pediatric house officer, informed me that a two-year-old had just swallowed a rodenticide containing zinc phosphide and what should he do about it. I was tempted to say to him "repeat after me, Our Father who art in heaven hallowed be Thy Name..." but I could sense that frivolity was not indicated.

Zinc phosphide is not a rodenticide that you would expect to be present in somebody's home. This rodenticide has been used since the 1930s, reaching peak usage during World War II when red squill (another rodenticide popular at the time) became unavailable.⁴ Red squill, by the way, has fallen into

disuse and has been replaced by more modern rat killers; this is a natural substance, derived from the sea onion plant. Fortunately, even though red squill contains two potent cardiac glycosides, it is of low toxicity because of its poor absorption and rapid excretion by humans. Zinc phosphide is a dark gray, crystalline powder which is made into rat bait by mixing it with oats, sugar, wheat or bran, usually used in a 1% concentration. Apparently it is also not commonly used by farmers anymore or pet control companies because it is very toxic, has an ugly gray color and smells like rotten fish.⁵ It also is alleged to have a terrible taste and is extremely undesirable to most animals, except rats, and they love it. It is of great interest that most dogs or cats will not eat this rat bait but some two-year-olds will. Go figure!! There is a rumor that the rats that love it the most are descendents of rodents from World War II supply ships. (Just kidding!!)

The toxicity of this zinc compound is probably due to the liberation of phosphine by the action of gastric acid on this chemical.⁶ When moist, this substance slowly releases its unpleasant odor. It is believed by most authors that the toxicity of this rodenticide is due primarily to the phosphine gas. Under conditions of low pH, such as in the stomach, the rate of phosphine gas generation is increased.⁴ Some of the zinc phosphide rodenticides available in the marketplace contain tartar-emetic to make it safer for people or domestic pets who consume this potential toxin accidentally.⁶ This addition of tartar-emetic was apparently unacceptable to many rats and was abandoned by many companies so do not rely on its being present if you are confronted by a patient who ingested this substance. I have suggested to one manufacturer that they add brussels sprouts or liver so that very few children will be tempted to indulge.

It is no surprise to learn that zinc phosphide is a very noxious substance to the gastrointestinal tract and that vomiting is an early adverse clinical response. It is fortunate for the patient that this emesis occurs because it tends to limit the toxic load carried in the patient's GI tract. The vomitus frequently contains blood. Anorexia, abdominal pain, and lethargy are other early complaints, as are chest tightness, a feeling of "coldness," and excitement. This can be followed by hypotension, cardiac arrhythmias, circulatory collapse, pulmonary

From the Department of Pediatrics, Bowman Gray School of Medicine, Wake Forest University, 300 S. Hawthorne Dr., Winston-Salem 27103.

edema, seizures, renal damage, leukopenia, coma and death in days to weeks.⁵ The estimated fatal dose is 40 mg/kg.⁷

In one paper from the 1960s it is stated that four to five grams of this product have caused death in adults but other patients have survived 25 to 50 grams.⁸ The majority of patients who succumb do so after an average of 30 hours, probably from cardiac damage; some patients die within a few hours from pulmonary edema. Apparently the majority of patients who are still surviving after three days will continue to do well.

Zinc phosphide is very toxic to humans whether it is ingested or inhaled or injected. Phosphine gas has been widely used as a fumigant against rodents who like to frolic and sup in stored grain, especially in grain elevators and aboard some ships. In a 1980 paper, by Wilson, Lovejoy et al, there is a description of a toxic encounter involving 30 people exposed to a phosphine gas leak aboard a grain freighter.⁹ The major clinical adversities were nausea, vomiting, cough, shortness of breath, fatigue and headache. Abnormal physical findings included diplopia, ataxia, intention tremor, paraesthesias and jaundice. One of the passengers, a child of the Captain, died. Autopsy revealed congestive heart failure, pulmonary edema, splenomegaly and aspirated gastrointestinal contents. It is of some interest to those readers interested in the classics that the name of this ill-fated vessel was the Thermopylai.

Do you remember the Battle of Thermopylae? You don't? It was one of the most famous battles in ancient history, in which gallant Greek warriors, manifesting incredible bravery, were defeated by the Persians under the leadership of Xerxes. Thermopylae itself was a narrow mountain pass between northern and southern Greece. The Greeks lost and the pass no longer exists and I would be afraid to name a ship after the battle, or sail on such.

In a very recent paper on the dangers of phosphide rodenticides, there is a description of eight people, mean age 23 years, who attempted suicide by ingesting aluminium phosphide.¹⁰ This compound, like its zinc counterpart, is a widely used fumigant to prevent rodents and other pests from contaminating grain. This aluminium compound also acts by releasing toxic phosphine gas in the gastrointestinal tract. Within minutes of ingesting the tablets the patients complained of epigastric pain, dryness of the mouth, numbness of the limbs, a feeling of suffocation and vomiting. All of the patients had peripheral vascular failure, and mental changes ranging from stupor to coma. Some of the victims had cardiac arrhythmias, jaundice, or renal failure as well. Six of the patients died.

The exact pathophysiology of this poison is not fully understood. It has been suggested that the toxin causes inhibition of stage III mitochondrial respiration and non-competitive inhibition of cytochrome oxidase.^{10,11} It seems reasonable to assume that some interruption of cellular respiration occurs which in turn leads to multisystem toxicity. Those organs with the highest oxygen requirements seem to be uniquely sensitive to damage and include the central nervous system, heart, liver and kidneys.

The diagnosis of zinc phosphide poisoning requires clinical skills that are part of what doctors are all about, i.e., a


thorough history and physical examination, looking carefully for evidence of a putrid, "rotten fish" odor to the breath and vomitus, black gastric contents associated with shock, coma and cardiopulmonary collapse.

The treatment of this potentially lethal rodenticide is supportive but with some caveats. Phosphide rodenticides release phosphine gas, in the stomach, if these compounds come in contact with water.¹¹ If you choose to use ipecac syrup it is probably better not to follow this emetic with fluids as we do with most other toxins. Gastric lavage could be a very scary maneuver also, but some authorities suggest gastric lavage with a 5% sodium bicarbonate solution in an effort to limit the acid hydrolysis of zinc phosphide.⁴ The evidence on this treatment seems to be soft. Activated charcoal can be helpful but do not mix it with water; use sorbitol instead. There is no antidote for this poisoning and the adverse clinical problems that arise must be treated symptomatically. We were never able to determine what this unmodern rodenticide, Rat Bait by name, was doing in the home, nor could we find an adequate explanation for this child's foraging behavior at 2:00 a.m. Our little patient had an uneventful recovery and lived happily ever after. It is alleged, however, that *his* bite is almost lethal.

At the end of the story Sir Gawain returns to King Arthur's Court and tells all of his guests he has been tested in terms of courage and fidelity and honor and passed the test, but not perfectly. But man is mortal and an imperfect being at best. Our chivalrous hero takes to drinking fermented grains, more than he should, and at the conclusion of his life, it was said of him... the Knight Belongs to Michelob. □

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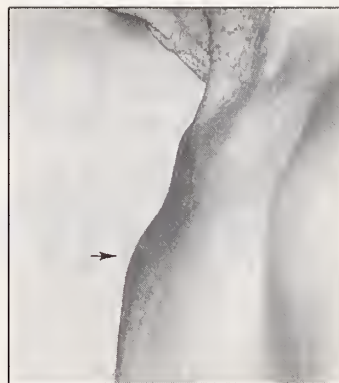
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Angle of Louis:

the angulus sterni, the angle formed by the junction of the manubrium of the sternum with the gladiolus (body). The costochondral junction of the second rib occurs at the angle of Louis. The angle becomes more prominent in patients with emphysema as shown here.



Pierre Charles Alexander Louis, born April 11, 1787 in Ai on the Marne, Champagne, France, was the son of vineyard owners. He took up the study of law but changed to medicine at age 20. Seven years later he received his M.D. in Paris. Louis returned home to plot out his future and was persuaded by an old family friend, the Count of Saint-Priest, to travel to Russia. After three years of touring the countryside, Louis settled in Odessa and set up his medical practice. Eventually, his skill and fame earned him the title of honorary physician to the Czar in the region of Odessa.

Louis was greatly disturbed by the tremendous death rate of Russian children in an 1822-23 diphtheria epidemic and returned to Paris for extensive study of the disease. He worked for six months at the Paris Children's Hospital, then joined his colleague Chomel, who was in charge at La Charité. For six years, Louis lived as a hermit pouring his energies into long hours of studies on the wards and in the morgue at La Charité. He compiled extensive notes and volumes of data on the various diseases he encountered. Dissatisfied with physicians' beliefs about the association of certain symptoms and signs with specific diseases, Louis set about to make medicine more a science and less an art; he attempted to re-introduce the numerical system of describing these relationships (initial work in the area is credited to George Fordyce, 1793). Instead of saying that a particular sign or symptom was usually or rarely or often associated with a particular disease state, Louis wanted physicians to know that in 40 cases out of 100, or 95 out of 150, a particular symptom was present.

Much of his work was published. "Researches on Phthisis" (1825), his first famous piece, included data from 123 patients. By the second edition of that work in 1846, Louis had earned many titles: "Physician to the Hotel Dieu; Perpetual President of the Medical Society of Observation; Member of the Royal Academy of Medicine; Honorary Member of the Societies of Massachusetts and of Edinburgh; of the Provincial Medical and Surgical Association of England; Fellow of the College of Physicians of Philadelphia; of the Royal Academy of St. Petersburg; of the Medical Societies of Heidelberg and Bruges; of the Medical Society of Observations of Boston." Louis's second great work was "Anatomical, Pathological and Therapeutical Researches on Gastroenteritis, Putrid, Adynamic, Ataxic Typhoid Fever," published in 1829, after a trip to Gibraltar with Chervin and Trousseau to study an epidemic of Yellow Fever. The data base here was the

symptoms of 900 patients and the post-mortem exams of 133. This work, not published until 1844, is one of Louis's most valuable manuscripts. As the scope of his knowledge and publications widened, word reached the United States that France was the place to study, and so began two decades of French dominance in medicine.

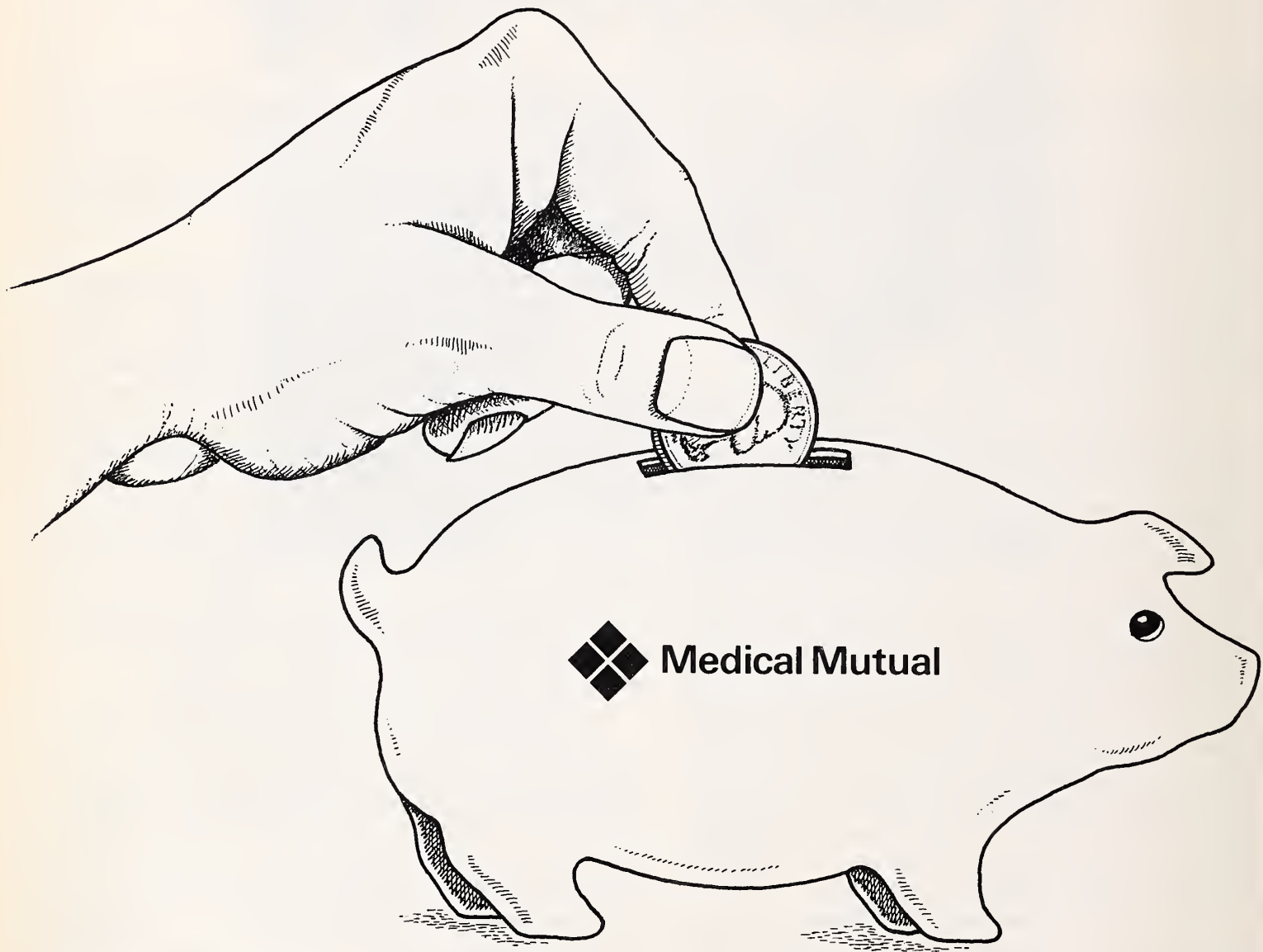
The trio of Louis, Chomel and Andral acted as magnet to students from all of Europe and the Americas. Louis's American pupils included Oliver Wendell Holmes, James Jackson, Jr., William W. Gerhard, Alfred Stille and George C. Shattuck. A brief review of the contributions of these men will further reveal the extent of Louis's influence on medical practice. Oliver Wendell Holmes said, "I learned three things in Paris—not to take authority when I can have facts; not to guess when I can know; and not to think a man must take physic because he is sick." This last observation may have been based on Louis's research on the various remedies then in use; he was able to prove many ineffective and some downright dangerous, including the use of leeches in treating pneumonia (1835). Holmes carried the numerical method back to Harvard to use in his teaching of Anatomy.

Louis married the daughter of the Marquis of Monferrier in 1829. They had been married six years when she gave birth to their only son, Armand. He followed his father into medicine and contracted tuberculosis while a medical student. Louis moved his small family to the south of France to attempt a cure, but Armand died at age 18. Contemporaries of Louis say that the inspiration for his work died on that same day. Louis continued his research, data analysis and teaching for many more years, however, at a much slower pace. He died on August 22, 1872, at age 85.

Historians have fought over the right to call the intersection between the manubrium and the body of the sternum the angle of Louis. Early writers believed that since he never actually defined the anatomic site it should not have been "his." In 1910, Dr. Edward Goodman of Philadelphia carefully researched Louis's work and found a comprehensive description of the bulging that occurs in the chest of patients with emphysema (*Journal of the Society of Medical Observations*, 1837). Even though Louis described the site as an abnormality, in his honor we refer to the normal junction as the angle of Louis.

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Edward C. Halperin, M.D., Book Review Editor

Diagnosis and Management of Diabetes Mellitus, Second Edition, by O. Charles Olson, M.D. New York: Raven Press, 1988, 351 pages (\$27.50).

Reviewed by Jeffrey W. Furman, M.D., 120 Conner Drive, Suite 200, Chapel Hill 27514.

The diagnosis and treatment of diabetes mellitus and the management of its numerous problems and complications is a common challenge for the primary care physician. Although most physicians understand the basics of the disease and its diagnosis, there are many subtleties involved in the care of diabetic patients in order to achieve the best possible control of the disease. The second edition of *Diagnosis and Management of Diabetes Mellitus* by O. Charles Olson, M.D., is a useful and practical resource for physicians dealing with diabetes.

In the foreword to this edition, Dr. Peter H. Forsham writes that "diabetes is a disease which for many years lacks an illness." It is in this spirit that Dr. Olson emphasizes a wide spectrum of the understanding of diabetes as a disease, including its epidemiology, etiology, and early diagnosis, as well as treatment, monitoring, and management of its complications. The book is a particularly nice blend of practical information and well-documented research issues that is written in a straightforward and easy-to-read style.

The table of contents is clear and well-organized. Because the wide variety of clinical situations and common problems encountered in treating patients with diabetes are covered in individual chapters, a physician wanting information in a specific area of management would be able to quickly use this book as a reference.

There are several unique chapters including one on the University Group Diabetes Program Study (a chapter of historical interest), one on alternate insulin delivery systems, one that looks at substitute sweeteners, and a chapter titled "potpourri" (e.g., use of HbA_{1c}, "brittle" diabetes, the dawn and somogyi phenomena, etc.). The information about ge-

netics is interesting, if not useful, as is the review of the literature on the immunology and etiology of diabetes.

The chapters on dietary management and the diabetic foot are especially valuable and contain much useful information for patients as well as physicians. And although the section on hypertension needs to be updated (e.g., there is no mention of ACE inhibitors or calcium blockers), most of the chapters are current and complete.

For those physicians more interested in a "how-to" approach, the sections on hospital management of diabetic ketoacidosis, surgical considerations in the diabetic patient, and diabetes in pregnancy contain step-by-step suggestions for order-writing and management of these situations. There are also clear-cut guidelines for modifying insulin regimens in a variety of situations (e.g., the newly diagnosed diabetic, change from oral agent to insulin, "shift workers," etc.).

As a practicing Family Physician whose time for outside reading is at a premium, I found Dr. Olson's book extremely interesting and informative. It contains a great number of very useful suggestions for handling a wide variety of clinical situations in patients with diabetes. I recommend it for any physician taking care of diabetics or high risk patients, especially those physicians who haven't read anything recently about the diagnosis and management of diabetes mellitus.

A Brief History of Time: From the Big Bang to Black Holes, by Stephen W. Hawking. New York: Bantam Books, 1988, 198 pages (\$18.95).

Reviewed by Edward C. Halperin, M.D.

Have you ever had an attack of "scientific literacy disease"? You know the symptoms: you suddenly feel compelled to take out a subscription to *Scientific American*; you feel a "need to know" about disciplines other than medicine; you start to feel that "as a scientist" you should know more about geology, astronomy, physics, mathematics, or computer science.

I have attacks of scientific literacy disease frequently. Sometimes these attacks pass. Sometimes I get away easily: I buy one copy of *Scientific American* and read it; I buy a book about a scientific field outside of medicine and battle

my way through it; I go to the library and scan some journals in other fields. During my most recent attack, I succumbed by buying a copy of Stephen Hawking's new book *A Brief History of Time*.

Hawking currently holds the same chair in mathematics at Cambridge University as was held by Sir Isaac Newton. He is considered, by peers, to be an outstanding theoretical physicist. Now 46, Hawking has been afflicted for over 25 years with amyotrophic lateral sclerosis, commonly known as Lou Gehrig's disease. Confined to a wheel chair, and unable to speak because of a tracheostomy, he communicates with an elaborate computer system which can transform his ideas into either computer-generated speech or written words.

In his new book, Hawking reviews recent developments in theoretical physics. He tries to convey, to the lay public, current attempts to answer some of the most fundamental questions of science: Where did the universe come from? Has it always been here? Are there ultimate limits to what humans can know about the structure of the universe? Does the universe have boundaries? Was there a defined origin of the universe, identifiable in space and time? These are profound and troubling questions. They are the sort of questions which are, for most of us, so difficult to grapple with that we ignore them. They are generally conceded to be the province of theoretical physicists and philosophers—and, as Carl Sagan has noted, uninhibited inquisitive small children.

Hawking begins his book by providing a reasonably simple explanation of the theory of general relativity. He then explicates the fundamental principles of quantum mechanics—the idea that waves of energy cannot be emitted at an arbitrary rate, but only in certain packets called quanta. Tied to the concept of quantum mechanics is the concept of the “uncertainty principle.” This principle states that in measuring the position of very small particles, the means of measuring will disturb the particle and change its velocity in a way that cannot be predicted. In other words, the more accurately you try to measure the position of a very small particle, the more you will disturb it. There are, therefore, limits to our ability to locate things—there is an irreducible “uncertainty” to our ability to measure.

Hawking then undertakes the formidable job of explaining the concept of the “black hole.” Black holes are stars that have such a large mass, and are so compact, that they generate an extremely strong gravitational field. This gravitational field is so strong that even light cannot escape. Such objects would be black voids in space.

In the concluding section of the book, Hawking explores the international effort to combine currently existing physics theories into a single quantum theory of gravity. In 1929 Edwin Hubbel made the observation that wherever you look, distant galaxies are moving rapidly away from us. The universe appears to be expanding. This observation suggested that there was a time, called the “big bang,” when the universe was infinitesimally small and dense. A large explosion would have begun the universe—and the observation that galaxies continue to be moving away would fit with the

theory. The theory of the “big bang” is often comfortable for those with religious notions of the start of time. The theory suggests that the universe did begin at a finite place in time.

Hawking suggests that current theoretical physics work does not require that the universe began with a big bang. Rather, the universe may be infinitely large, with no evidence of boundaries. There also may be no reason to think that the universe had a finite origin in time—rather its span is infinite. If these findings are true, then we may live, in the words of Carl Sagan, in “a universe with no edge in space, no beginning or end in time, and nothing for a Creator to do.”

Stephen Hawking's book is by no means “an easy read.” It is a book requiring considerable work, study, and frequent rereading. It may make you scientifically literate about current developments in theoretical physics—but you are going to have to be willing to work in order to obtain your literacy from this book. If you are afflicted with an attack of “scientific literacy disease,” you should think carefully before treating yourself with the complex and sometimes disquieting book *A Brief History of Time*. □

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FOR PATIENTS

NORTH CAROLINA MEDICAL SOCIETY

Health Watch

VOLUME 50 / NUMBER 1 / JANUARY 1989

Heart Disease

Heart Attack

The human heart is a muscle that pumps blood through the body. It has its own blood vessels, the coronary arteries, that feed it and keep it alive. Over the years, fatty deposits known as plaque (which are composed mostly of cholesterol) line the inside of the coronary arteries, taking up more and more of the space in the artery until there is very little room left for the blood to go through. This process is called hardening of the arteries or atherosclerosis.

When very little blood can get through the coronary arteries, or when a clot forms in a part of an artery that is already very narrow because of cholesterol deposits, the heart muscle cannot get the oxygen it needs. This causes pain or pressure in the chest or, if no blood at all can pass through the artery, it causes a heart attack, which damages or kills the part of the heart muscle that is deprived of its blood supply.

What does a heart attack feel like? It's not the same for everyone, but most people report feeling an uncomfortable pressure, fullness, squeezing or pain in the center of the chest, which sometimes spreads to the shoulders, neck, jaw or arms. Other symptoms of heart attack include sweating, dizziness, fainting, nausea, severe indigestion or shortness of breath.

What should you do if you have these symptoms? If your pain or discomfort lasts more than two minutes, get help fast. Early treatment can mean the difference between life and death.

From the North Carolina Medical Society, P.O. Box 27167, Raleigh, NC 27611.

Stroke

A stroke is like a heart attack in the brain, but unlike most heart attacks it's often painless. A stroke occurs in one of two ways. Some strokes occur when blood flow to the brain is cut off by a blood clot that gets stuck in a narrowed area of an artery to the brain. If the clot *forms* in the artery it's called a cerebral thrombus. If it wanders through the body and *settles* in the artery in the brain it's called a cerebral embolus. In either case the result is a cerebrovascular occlusion or stroke.

A stroke can also occur when a weakened artery in the brain bursts, flooding the surrounding tissue with blood. This is a cerebral hemorrhage, which is more likely to occur when a person has a combination of atherosclerosis (hardening of the arteries) and high blood pressure.

The effects of a stroke depend on the part of the brain it affects. They could include paralysis of one side of the body, loss of the ability to speak or understand or loss of memory. Dead brain cells cannot be healed nor does the body create new ones, so the key to dealing with a stroke is preventing one.

If you have a sudden temporary weakness or numbness of the face, arm and/or leg on one side of the body you may be having a stroke. Other signals include temporary loss of speech or trouble speaking or understanding speech; temporary dimness or loss of vision, especially in one eye; unexplained dizziness, unsteadiness or a sudden fall.

People having strokes need immediate medical attention. The sooner a stroke is diagnosed and treatment is begun, the better the chance for recovery.

Risk Factors

Some people are more likely than others to have heart disease, and the causes of their increased susceptibility are called risk factors — the risky elements in their life. Some risk factors you have literally no control over; you have to live with what you get. Other risk factors you can change to reduce your chances of having a heart attack.

The Ones You Can't Control

You can't do anything about your family, your **genetic inheritance**, but consider yourself lucky if you were born into a family of people who live long, healthy lives and die in their sleep over the age of 90. On the other hand, if one or both of your parents died young from heart disease, that's a serious risk factor for you and a reason to take steps to reduce any other risk factors you might be able to control.

There isn't much you can do about your **age**, but the older you are the more you are at risk of developing heart disease. It's a little late to adjust your sex, too, but the death rate for men between 35 and 55 years old is six times higher than for women of the same age. Mortality rates vary according to **race**, too: death rates from heart disease for nonwhite men and women are now higher than for white men and women; that was not the case as recently as 1968.

Heredity, age, sex and race are the risk factors you simply have to live with. If you are of an age, race and sex that puts you at risk, and you have a family history of heart disease, it will behoove you to make certain changes in the way you live to reduce other risk factors to manageable levels.

The Ones You Can Control

Blood pressure is such an important indicator of the status of your health that your doctor probably measures it nearly every time you come into the office. People with high blood pressure, or hypertension, are at higher risk for heart attack and stroke than people with normal blood pressure. The good thing about high blood pressure is that it can usually be returned to normal in one of two ways: through diet and exercise or through drugs.

Most doctors agree that blood pressure over 140/90 should be treated. Patients are advised to avoid the salt shaker and foods high in sodium and fat, to lose some weight and to start getting some moderate exercise. Put together successfully, these changes can often bring blood pressure down to normal. If they cannot, then medications are another possibility. The trouble with drugs is that they have side effects for some people, they're easy to forget, they're sometimes expensive and they're inconvenient. But they do work. Some patients aren't very good at taking drugs if they feel fine, and this can be a very serious problem when a patient has high blood pressure, because people with hypertension usually feel just fine. They have to take their daily medication faithfully, however, in order to be just fine.

High blood pressure means that the blood rushing through

your body is doing so at increased pressure, putting more than normal stress on your arteries, which weakens them. Over time, areas of weakness in an artery can balloon out in an aneurysm. Sometimes aneurysms burst, causing life-threatening emergencies. By reducing your blood pressure, you reduce the chances of such an emergency in your life.

Another risk factor you can do something about is **smoking**. Middle-aged men and women who smoke one pack of cigarettes per day have a 75 percent higher chance of dying from heart disease than those who do not smoke. The nicotine in cigarettes causes the heart rate to increase and the arteries to narrow. Increasing the number of times the heart beats per minute is fine; you do it whenever you exercise strenuously, for example. You run into trouble, though, if you decrease the amount of available space in the artery at the same time. That's exactly what you do when you smoke. That means more blood is trying to pump faster through less space. Eventually that stresses the heart.

Cholesterol can be a risk factor, too. It's a fat in the body that can be measured by a simple blood test. If there's too much cholesterol (or triglycerides, another fat in the blood), you are at increased risk of developing coronary heart disease. The fat lines the inside of your arteries causing blockages. A blockage in an artery in your leg reduces the amount of blood that gets to your calves and feet; ordinary walking can cause pain and cramping of muscles starved for blood and oxygen. A blockage in an artery in the heart can have the same effect there, but the pain in the heart muscle is a sign of a heart attack.

If your cholesterol level is too high, changes in your lifestyle can improve it. The primary change is in diet. By cutting out foods high in fat, by baking and broiling rather than frying, by using margarine that is polyunsaturated instead of butter and by eating more fiber such as oatmeal and dried beans you have a very good chance of lowering your cholesterol. A second desirable change is to increase your exercise level. By changing your diet and increasing the amount of exercise you do you will certainly lose some weight, a third desirable effect. If none of these changes brings your cholesterol level down to normal, medications are available, but they can be expensive and they may have some side effects. Your first choice should be to lower your cholesterol naturally. If that fails after a faithful attempt, then you and your doctor will have to talk about medications.

Use Common Sense

If you happen to be born into a family with a history of early heart disease and you are approaching middle age, it would not be good for you to smoke and have high blood pressure and high cholesterol. Adding one risk factor on top of another worsens the outlook. Control the risk factors you can control by stopping smoking, lowering your blood pressure and reducing your cholesterol. Adding a moderate exercise program into this equation will help, too.

Prevention

The other side of the coin from risk factors is prevention. Even if you're born into a family with a strong history of heart disease, you can take steps to reduce your chance of developing heart disease and having a heart attack. Although the steps are simple to think about, they require making changes in the way you live, and that sometimes makes them difficult to do.

Hypertension

Take high blood pressure, for example. There's a lot of it going around. If you love salty foods and you have hypertension, you have two choices. Continue to eat the salty foods and keep your blood pressure high — increasing your risk of heart attack or stroke — or cut out the salty foods and lower your blood pressure.

Some doctors studied natives in the Solomon Islands years ago before civilization reached them and found that they live their entire adult lives with about the same level of blood pressure. (People from more civilized parts of the world have their blood pressure increase as they get older.) The Solomon Island natives farmed and fished to keep themselves alive, and they ate a salt-free diet. Farming and fishing required exercise, too, which was good for their health.

A return visit to the Solomon Islands some years after civilization had reached their villages showed that their adult levels of blood pressure increased with age, just like ours. Civilization had brought them ways to cut down on their strenuous work, which cut down on their exercise, and it had brought them salt for their food. And it had brought them hypertension.

Cholesterol

Cholesterol is not all bad. Some cholesterol is manufactured within your body and is needed by your cells in order for them to function. Additional cholesterol gets into your body from foods you eat. It may be that the amount in your body is the amount your body needs. If you have more than your body needs, the extra cholesterol may attach itself to the walls of your arteries, narrowing the space your blood needs to pass through. Eventually it may clog those arteries, including the coronary arteries that feed the heart, so that no blood can get through.

To have a good total cholesterol level — which most doctors agree is under 200 milligrams of cholesterol per deciliter of blood (mg/dl) — you need to watch what you eat. Foods high in fat are out — bacon, fried chicken, ice cream and so on. Foods low in fat are in — baked chicken, steamed vegetables, whole grain cereals and fish.

Not everyone can be helped by diet and exercise alone. Some people have very high cholesterol simply because it runs in their families. For these people prescription drugs are now available to lower cholesterol and the risk of heart attack and stroke. There are also some lucky people who have a

family history of low cholesterol and no heart or vascular disease. You may fall into one of these two categories or you may be much more average. You won't know until you've had your cholesterol measured.

Doctors now know that there are both good and bad kinds of cholesterol in the body. One good kind, high density lipoprotein cholesterol or HDL, seems to play a role in removing excess amounts of the other cholesterol. Therefore, it's good to have more HDL cholesterol in your body; higher levels are better. Studies done so far on HDL cholesterol show that you can increase the amount of it in your body through regular, vigorous exercise. Desirable HDL levels for women are over 50 mg/dl; for men, over 45 mg/dl.

The most recent data show that the best measure of a good cholesterol level in a given person is the ratio of HDL to total cholesterol. If total cholesterol divided by HDL is more than 4.5, there is reason for concern. So, if your total cholesterol is 202 and your HDL is 57, the ratio is 3.5 and that is reassuring. If your total cholesterol is 250 and your HDL is 50, the ratio is 5.0 and that is not good.

Start by finding out your total cholesterol. If it's under 200 mg/dl, continue doing what you're doing and check it again in a year. If it's over 200 but under 240 mg/dl, check with your physician and get a breakdown of cholesterol in your blood so that you can know the ratio of HDL to total cholesterol. Then you and your doctor together can decide whether to concentrate on diet to bring down total cholesterol or exercise to increase HDL or both. If your total cholesterol is over 240 mg/dl, make an appointment to see your doctor as soon as possible and get started bringing it down to normal.

Smoking

If you smoke cigarettes, stop now. If you don't smoke, don't start.

Pipe and cigar smoking may be safer, because most pipe and cigar smokers don't inhale. Therefore, they don't have nicotine circulating through their body increasing the rate their heart beats at and narrowing their arteries. But there are other risks for those who smoke pipes and cigars, including increased chances of getting cancers of the lip, tongue and throat.

Smokeless tobacco — snuff and chewing tobacco — represents a way around the dangers of cigarette, cigar and pipe smoking to some people, but there is increasing evidence that it, too, shortens lives. The answer to tobacco is to stay away from all kinds.

In Upcoming Issues

February: What it's like to have — and recover from — a heart attack by William D. Snider

March: What you need to know about cholesterol by Frederick L. Dunn, M.D.

April, May, June: Vision

Treatment

When a person is having a heart attack and recognizes it as such and seeks medical attention immediately, the chances of surviving it are much better today than they were just ten years ago. Several recent developments in heart research are some of the reasons for such improved survival.

There are new clot-dissolving drugs like streptokinase and tissue plasminogen activator (TPA) that can be injected into the bloodstream with immediate relief of the blockage in the artery and the pain it causes.

There are procedures like angioplasty, in which a catheter with a balloon in it is threaded right into the middle of the clot that is blocking the coronary artery and then inflated, pressing the clot and the old plaque beneath it against the sides of the artery and creating a passageway for blood flow.

New equipment that will go into the coronary artery and shave away layers of old plaque lining the artery is just around the corner, awaiting FDA approval.

There is coronary artery bypass surgery wherein a vein from the thigh is used to go around blocked arteries on the surface of the heart.

There are highly sophisticated coronary care units, some of them in smaller county hospitals, where excellent care is available for the patient with a heart attack or stroke. Here in North Carolina extremely good coronary care for the sickest heart attack and stroke patients is as close as a 45-minute helicopter ride away.

Aspirin

Early in 1988 aspirin took over the headlines of newspapers all over the United States. A study of 22,000 doctors that had been going on for four years was suddenly halted when the researchers doing the study realized that the 11,000 doctors who had been taking aspirin as part of the study were having half as many heart attacks as the 11,000 doctors who had not been taking aspirin.

Medical researchers don't stop studies in process very often, but these results were so striking that they felt they had no ethical choice. They did find that the doctors taking aspirin had a somewhat greater chance of having a stroke, probably because aspirin thins the blood and can contribute to a hemorrhage in the brain. On the other hand, the thinned blood is less likely to clot, and clots can also cause strokes as well as heart attacks.

The findings about aspirin don't mean you should begin to take aspirin without checking with your doctor. Aspirin is not without side effects, including stomach symptoms such as pain, heartburn, nausea and bleeding. Also, aspirin isn't a cure-all. Taking aspirin, even with your doctor's approval, does not mean that you can ignore your other risk factors for coronary heart disease. If you have hypertension or high cholesterol and you weigh too much and exercise too little, check with your doctor about those risk factors when you inquire about aspirin, and start to work on all of them at the same time.

Lifestyle

Some years ago a study was made of the risk of heart attack among drivers and conductors who worked for the London bus system. The drivers, who sat at the wheel of buses all day, had 1.5 times more fatal heart attacks than the conductors, who spent their day moving up and down the aisles and stairs of the double-decker buses.

The message in this and other studies is clear: people who regularly exercise vigorously reduce their risk of heart disease regardless of their other risk factors. Regular vigorous exercise is aerobic or sustained physical activity within a specific heart rate range for 15 to 20 minutes three or four times a week. Before starting any exercise program, check with your doctor to be sure you're ready to begin an exercise regimen. Your physician will also be able to determine your target heart range for you.

After you have visited your doctor for a physical examination and exercise electrocardiogram (if you're over 40), you might start an exercise program of brisk walking, jogging, running, swimming, cross-country skiing, bicycling or tennis. All of these activities involve sustained movement, which is the key to good aerobic exercise. And good aerobic exercise, over time, makes your heart beat slower and more efficiently.

The Grim Statistics

Heart disease is, plainly and simply, a killer. More than 600,000 people die from heart attacks in this country every year, more than the number of Americans who died in World War I, World War II, Korea and Vietnam **combined**.

One-quarter of those who die from heart attacks in 1989 will do so suddenly, without warning and without ever knowing that they had heart disease. One-quarter of those who die from heart attacks in 1989 will be younger than 65. Almost 400,000 of the deaths from heart attack will happen outside of a hospital and within the first two hours of the start of a heart attack. One person will die of heart disease every 32 seconds.

In North Carolina, more than 25,000 people will die from diseases of the heart and blood vessels in 1989. Almost half of all people who die in North Carolina this year will die from heart disease.

Heart disease is a serious problem to North Carolinians. But it's a problem that can be either prevented or treated.

What Should You Do Now?

If you want to know what to do in order to avoid learning firsthand about heart attacks and strokes, look first to your risk factors. Have a thorough checkup with your physician and then sit down and talk about what you can and should — and cannot and should not — do to increase your chances of living a longer and healthier life. It's worth it. □

Nathan Womack

and the First Department of Surgery at the University of North Carolina

Erle E. Peacock, Jr., M.D.

A senior member of the American Board of Surgery in 1962 remarked as we walked out of a Board meeting, "The last five graduates of the surgical residency in your institution have led the Board in their respective centers; what's going on down there?" The answer he should have received was, "It is purely and simply a case of the right man being in the right place at the right time." Such was the legacy of an extraordinary surgical educator and the formation and growth of a most unusual department of surgery.

Nathan Anthony Womack was a North Carolinian—"a Tar Heel born and bred" in every sense of the expression. As a high school student leader in Reidsville, he carried diagrams of plays in his football helmet to show less endowed classmates what to do in the huddle. He borrowed money from "boss" Eubanks (proprietor of the old Eubanks' Drug Store in Chapel Hill) to get through undergraduate and the first two years of medicine at UNC. The last two years and graduate surgical training were at Washington University and Barnes Hospital. After student and resident years he practiced surgery in St. Louis and was a valuable member of the part-time faculty. He became a close friend of Evarts Graham with whom he played golf on Sunday mornings. Even though he was only part-time, without question, Nathan Womack was one of the most curious and scholarly members of the faculty. Particularly, during the war years he carried a huge clinical load in a city short of young surgeons, yet, he never ceased to enlarge his intellectual horizons. In addition to being an avid reader and a conversationalist par excellence with anyone in any discipline who could teach him anything, he perceived a serious lack of expertise in surgical pathology at Barnes Hospital and decided personally to rectify the situation. It was not long before the busiest clinical surgeon in St. Louis became the surgical pathologist for Barnes Hospital and later a recognized authority on surgical pathology of the biliary tract, breast, and gastrointestinal tract.

Nathan Womack was one of the most exciting scholars in surgery and clearly belonged in a full-time academic leadership position. Several opportunities came simultaneously. He turned down an opportunity to succeed Graham at Washington University because of political and financial problems in that institution. He accepted a full-time position as Professor of Surgery and Head of the Department of Surgery at The University of Iowa. Before leaving St. Louis he identified Carl Moyer as a rising scholar in surgery and helped recruit him to succeed Graham.

The next few years in Iowa were stormy. Womack's scholarly approach to surgical education, his strong belief in the importance of basic and clinical research in surgery, and, above all, his incorruptible ethic about how surgery should be taught and practiced pitted him against some less than praiseworthy activities that were rampant at that time in the Midwest. He was particularly outraged by the American College of Surgeons expelling and denying admission to surgeons for fee splitting. He knew that fee splitting was common in the Midwest at that time and that officers in the College participated.

One of the factors that attracted Womack to Iowa was a unique faculty practice plan which had recently been introduced by the president (a lawyer) to regulate and distribute private practice earnings. The new plan at Iowa resulted in the resignation of the Chairman of the Department of Surgery. It was a brilliant compromise between geographical full-time compensation (you kept what you made) and what was called at that time the Chicago System (you gave everything you made to the university in return for salary and other support). Womack heartily supported and added improvements to the plan at Iowa; it subsequently became a model for many successful practice plans even though it was not popular with the faculty during Womack's tenure. Womack stuck to his principles, however, even though he occasionally suffered embarrassment. He was loyal to the university and complained only in private to those he trusted.

During the years at Iowa, Womack returned to North Carolina in the summer. A neighbor on the coast where he

owned a cottage once said that she only saw him twice during the month of July. The first hour when he arrived was spent unloading books and taking them into the cottage. She claimed she never saw him again until the end of the month when the last hour of his vacation was spent hauling books out to the car.

Almost at the same time, the University of North Carolina began a search for academic leaders in clinical sciences. Dean W.R. Berryhill went to his alma mater, the Harvard Medical School, and asked friends and former teachers to show him various lists of promising young academicians that some day might be brought to Harvard. Dean Berryhill told me that the name of Nathan Womack was at the top of every list he received. Berryhill and Womack had been friends as students at UNC and had high regard for each other. It was late in 1950; the university had found the ideal candidate to lead the new department of surgery.

For Womack it must have been a dream come true. Few academicians have the opportunity to recruit an entire department and thus mold the direction of that department and, to some extent, the school and the discipline for a generation. To be able to do so in the friendly confines of one's own university and in a state where truly he was at home again must have made the difficult years at Iowa and the private practice burden in St. Louis fade from memory. For the university, it was a brilliant opportunity to have a favorite son at the height of his career and productivity, an international authority in academic surgery and surgical pathology, and a loyal North Carolinian return to lead its new four-year medical school during the important formative years. And what years they were.



Nathan Womack, M.D.

Womack and His Department

The Department of Surgery at the University of North Carolina School of Medicine opened its one door into a secretary's antechamber leading to Womack's small office in Miller Hall during the fall of 1951. A steady stream of people filed through the door as Womack began searching for faculty and housestaff sufficient to open a few beds in the new North Carolina Memorial Hospital which was scheduled to open in the fall of 1952. For the most part he searched for the brightest and the best young academic surgeons just completing their training. It is interesting that, with two

intentional exceptions (so that everyone would not be retiring or leaving at the same time), he did not try to recruit established national authorities that would bring instantaneous prestige to the department. Rather, he searched for youngsters with potential to grow into leaders as the new school grew. In addition, he recruited a prominent North Carolina orthopaedist with a large private practice to help fill beds as soon as they opened. With the exception of another senior surgeon, the head of neurosurgery, the rest were young academic surgeons he and trusted advisors believed had potential to become leaders. He gambled on a dozen such individuals and that he and the University of North Carolina could provide the milieu and the leadership to fulfill their potential.

One of the most special times in the development of a department of surgery is when it is small enough to be a single department rather than a consortium of independent divisions. Key during this time at UNC was the absence of specialty residencies. Between 1952 and 1956, orthopaedics

and ophthalmology were the only specialties with their own residents. General surgery residents served alternately on urology, otolaryngology, neurosurgery, thoracic surgery and general surgery as chief residents for those specialties. Such an arrangement required almost one-to-one tutoring from an attending surgeon, and, of course, that is exactly what general surgery residents enjoyed during those years. With fewer than 100 patients to take care of there was adequate time for combined specialty conferences; two were the heart

and soul of the new department's educational philosophy and, ultimately, its success. Womack presided over both conferences and his wide interest in all of human biology as well as his vast clinical experience in many surgical specialties provided leadership which was respected and appreciated by faculty, housestaff, and students.

Preoperative Conference

One conference, held daily at 1:30 p.m., was called Preoperative Conference. The conference developed because the surgery schedule almost always was completed before noon; clinics were not so large that staff needed to arrive before 3:00 in the afternoon. There was, therefore, a hiatus in the day after lunch. Everyone ate in a small cafeteria beneath the operating room suite and just sort of drifted upstairs to the

one conference room large enough to hold 30 to 40 people. There they talked about what had been done that day and what was planned for the next day. The conference soon became the administrative structure by which the operating room schedule was made each day. A resident, intern, or student would present a patient's problem and outline the surgical procedure that was planned. Then, everyone had a go at him. It was really a conference to defend the obvious—and sometimes the obvious turned out not to be so obvious, and, occasionally, not even defensible. An example was a patient I presented for an operation on his hand and changed the procedure to an operation on his neck because of questions asked by a resident on thoracic surgery. When an intellectual ruckus erupted, Womack often provided information or advice that was meaningful and sometimes even overpowering to those who had argued most loudly. Rarely, Womack was incensed by lack of knowledge by the surgeon or insufficient preparation or investigation of a patient. If it was bad enough he would say in an almost parental manner, "Let's not operate on this patient tomorrow until we can get some more data," etc. His clinical judgment had been proven so many times that no one challenged his authority or right to cancel surgery on a patient even though he usually had not seen the patient. Attendance was not required at Preoperative Conference but the room routinely was overcrowded with housestaff, faculty, and students. At the end of the conference the operating room supervisor and the head of anesthesia would put the schedule together for the next day. Obviously, all patients to be operated upon the next day were presented at Preoperative Conference.

The major lesson that was taught and re-taught in Preoperative Conference was the need to be able to define accurately and scientifically what was wrong with a patient and to have a rational, scientifically based plan to correct it. To say that a patient had a recurrent hernia and the plan was to repeat the same type of herniorrhaphy would not do. If a surgeon wanted to re-operate upon a hernia and have Womack's blessing for what he was about to do, he had better think through every explanation of why the first procedure failed and have a new plan for the next day that would have some reasonable expectation of preventing a second recurrence. Repeating the first procedure without adequate analysis for why it failed did not fulfill that criterion.

Mortality and Morbidity Conference

The other important conference was Mortality and Morbidity Conference held on Saturday morning. Patients, again, were presented by a junior house officer, or, rarely, an exceptionally good student. Students usually did not present cases at Mortality and Morbidity Conference; when they were allowed to do so it was a sign of unusual competence. Womack presided and asked questions if no one else did. At the end of the discussion he often turned to the responsible faculty member for a summation of what could be learned. More often than not, however, Womack's own experience

and analysis of what went wrong provided the most penetrating critique. His piercing intellectual honesty came through in every Mortality and Morbidity Conference. It simply was not possible to brush away a detail, overlook a mistake, or make light of an error in judgment or technique. The most feared word was "slovenly." Womack once said that slovenliness was a disease and that it was harder to eradicate than cancer. Nothing irritated him more than for everyone to be assembled and a paucity of presentations made. He knew what had been scheduled for surgery and he knew complications were inevitable. The only acceptable excuse for failing to present a complication was the need to gather more data or to wait for the responsible surgeon to be present. Occasionally an unenlightened house officer would present a case in the absence of his mentor. He would be cut off as soon as Womack realized that the responsible surgeon was not present to critique the resident's presentation and conclusion. There was no rule requiring attendance at Mortality and Morbidity Conference, but no one missed it except to take care of an emergency or because of distant travel.

The major lesson taught in Mortality and Morbidity Conference was the importance, and also the difficulty, of being one's own judge. Womack taught that it was extremely important to be able to judge one's own work. He felt that being an accurate judge of one's work kept surgeons from being too depressed when things went wrong and too elated when they went as planned. He did not tolerate hypocrisy or unscientific self-flagellation and he was outwardly intolerant of sidestepping or shifting responsibility for mistakes. The worst show of temper on record was following presentation of an operation that was started (skin incision only, fortunately) on the wrong leg. The attending surgeon made the mistake of sounding as if he was seeking sympathy by quoting Dwight L. Moody's well-known statement, "There but for the grace of God go I." Womack's retort left no doubt that, grace or no grace, there simply was no excuse for such a near tragedy.

Womack Himself

Dr. Womack conducted an active surgical practice during all of his years as chairman. He was not a pretty or smooth surgeon to watch but he was swift, safe, and always able to identify the problem accurately. He emphasized the use of a knife rather than scissors during dissection. Most of his patients did well and experienced very few complications. He never held rounds in the conventional way. In the morning before surgery and in the evening before leaving he visited all of his patients. The resident and student assigned to his service knew what time he visited patients and would meet him in the hall. If they didn't, he would go without them. He generously consulted on anyone's patients when asked to do so but never conducted or made formal rounds on a whole service. His mornings were spent in the operating room or clinic. He went to as few meetings as possible; consequently, he was almost always available in his office

during the afternoon. If there was any one characteristic of Nathan Womack and of the flavor of the department of surgery during his tenure that told the whole story of the department's success, it was that the chairman was not only available—easily available—but every house officer and faculty member felt comfortable walking into his office. His secretary made no attempt to shield him and his inner office door was always ajar when no one was with him. The aroma of his pipe drifted into the hall and almost seemed to entice one to drop in for a leisurely talk. He was usually working on a manuscript or reading when interrupted. He never failed to put down what he was working on, motion to a chair, and then sit back and relight his pipe in a relaxed way that made the intruder feel that nothing in Womack's life was more important than what was on the visitor's mind. It still seems incredible that he got any work done during the afternoon because 35 house officers and 20 faculty members enjoyed talking with him so much. The answer, of course, is that he did not. His paperwork was stuffed in an aging, dilapidated briefcase to be carried home with him at night.

Womack kept a microscope on a table by one side of his desk and the largest floorstand Webster's dictionary on the other side. When discussing a patient with Womack, it was common practice to bring slides if the patient had a biopsy or any tissue removed. Some of Womack's greatest teaching was over his microscope. It really wasn't necessary to bring slides, however; Womack made some arrangement with the Pathology Department to deliver to his office every day a duplicate slide of every specimen pathology received. That's how Nathan Womack made rounds on the entire department of surgery. That's how he quite frequently knew more about a patient than others knew; he looked at every specimen of tissue removed in the operating room every day. One of the senior residents had a dog named Kocher who developed a tumor of the ear. The tumor was removed by some of the housestaff and sections were made. It did not look like anything the pathology department had seen before so the resident showed it to Dr. Womack without giving him a history or even telling him that it had been removed from an animal. While studying the slide, Dr. Womack told the resident exactly what the tumor was and that it was a relatively rare canine tumor. He described the clinical course and prognosis and then looked up, almost nonchalantly, and said, "And by the way, how is Kocher?"

Not all of Womack's visitors fared so peacefully. During the war, while still in St. Louis, he was interviewed by an FBI agent seeking information about one of Womack's students, Louis Hempleman, later a key figure in atomic energy research. Womack later described his visitor as being "full of himself." The interview ended abruptly following what Womack thought were inappropriate questions when he blurted out, "Any educated person in the United States who read the September 1939 issue of *Nature* describing the fission of uranium into two barium molecules and who has followed the disappearance of every atomic physicist in this country with only a remote post office box mailing address in New Mexico and who has observed the activities of the

Mallinkrodt Chemical Works cleaning up uranium and shipping it west, can only conclude that the United States is building a nuclear fission weapon in New Mexico to use against the Axis." The date was 1944. According to Womack, the agent, who until that moment had been "too full of himself," turned ashen and departed abruptly. From that moment Womack found himself the subject of FBI investigation and later surveillance.

Faculty meetings were held every Friday afternoon at 4:00. Every member of the faculty attended and looked forward to the occasion. It was sort of an end-of-the-week review and the few times there was little or no university business, we talked about whatever was on our minds. The hiatus between Preoperative Conference and faculty meeting was a special time for some of us who enjoyed athletics. In those days the freshman football team played home games in Kenan Stadium on Friday afternoon. Womack was an avid sports enthusiast so nothing pleased some of us more than to see him in the hall with his hat on headed the 500 yards from his office to the stadium. If he saw one of us or if our office door was ajar (and we saw that it was) he would stick his head in and say, "Come on; let's go look at the freshmen until time for faculty meeting."

The Administrator

The department was administered as a benevolent dictatorship. The faculty trusted Womack that much. No one knew or wanted to know what anyone else was paid and so the budget was shown to us only with one personnel category—total salary budget. Womack and his secretary did all of the budgeting, kept the books, and reported to us quarterly. The entire departmental budget including full-time salaries, insurance, travel, etc., was \$232,000 one year.

Womack's philosophy about faculty compensation was based upon strict accounting of what each of us did. In his scheme a professor of surgery was worth no more or no less to the University than a professor of English as far as compensation for teaching was concerned. He argued that the state should be responsible for compensating a teacher for educating students. If a professor of surgery also chose to see patients and generated income by doing so, he was compensated generously, though not excessively, for taking on additional responsibilities and risks. If a teacher performed research, the sponsoring organization could provide compensation for that time but, generally, Womack was opposed to soft money support from outside of the university. He probably expected the state to compensate him for administrative tasks but because none of the rest of us had significant administrative duties, this was not an issue in obtaining compensation for faculty. A typical professor of surgery who engaged in practice and research while teaching as a full-time member of the faculty generally would be paid approximately 65% of his salary from state appropriations and 35% from pooled private patient earnings. Womack did not hire clinical faculty on less than 50% "hard" money.

Under this system, the greatest stimulus was to be a good teacher, next to be a productive clinician, and finally to be an active investigator. Those who specialized and/or excelled in one or two endeavors and not a third could be compensated adequately under such a system. A faculty member was free to practice or not practice and free to perform or not perform research. He was not free to neglect teaching duties. There were no part-time teachers on the full-time faculty while Womack was chairman.

Womack's philosophy about the amount of compensation was pure. He felt that if a university could give a tenured professor security, protection in case of disaster such as death, disability, or litigation, and help get his family educated, he should be willing to serve the university for a relatively modest salary. Womack did not think that it was necessary to sign a poverty pledge to become a full-time academic surgeon but he also did not believe that teachers and practitioners of surgery should become wealthy through teaching and taking care of patients in a university. He did not join the full-time faculty at Washington University because he was not wealthy and compensation at that time was inadequate. A person literally had to have independent income before becoming a full-time teacher in the early years of academic surgery.

Distribution of private patient earnings, a serious problem in some universities, was never a problem during Womack's administration. He thoughtfully recognized that private practice earnings should be distributed directly to the school and the department of surgery and only indirectly to the surgeon who took care of the patient. An advisory committee of clinical earners audited expenditures of pooled clinical earnings deposited in the dean's office. The exact formula was not known to most but because the faculty felt that it had superb fringe benefits, as much security as a good university could provide, and a fair chairman who was genuinely concerned about the welfare of all of the faculty, things ran smoothly. The Dean of the Medical School and the Chancellor of the University often expressed appreciation for the generosity of the department of surgery; there was never any external evidence of competitiveness with other lower earning departments.

Promotion through academic ranks in the first department of surgery was primarily because of teaching excellence and original research. Clinical excellence alone did not justify promotion to associate or full professor. It was unthinkable to Womack to have anyone in the department at any level who was not a superb clinical surgeon. In his system there could be only a few permanent assistant professors who only taught and practiced surgery. There was, therefore, neither financial nor academic stimulation to build a huge clinical practice. Womack used the rank of instructor for almost all entry-level positions. He felt that the instructor position provided an individual unsure of whether he wanted to be a full-time academic surgeon the opportunity to experience university life without the physical demands of the residency years. It gave the university an opportunity to observe such an individual on a year-to-year basis and

determine whether academic life was really what he should pursue. Promotion to an assistant professor was almost automatic after several years of productivity as an instructor. Promotion above assistant professor was another matter, however. Womack frequently said that there was really no reason for a good university to promote a surgeon above the rank of assistant professor except to keep another university from recruiting him. He was not ashamed, therefore, of the "publish-or-perish" slogan prominent in academic circles at that time. Publications in refereed journals provided excellent data for judging an academic surgeon's contributions.

Everyone passed manuscripts and grant proposals through Womack's office on the way to editors or review boards. He did not require that the faculty do so, but having him critique a manuscript was an incredible educational experience. It also provided near certainty that the manuscript would be accepted by any journal. Womack had extensive editorial experience and was master of the English language. More important to us, he seemed to enjoy helping others learn to communicate. Many of us had a war education and were not polished or published authors. The first manuscript I sent him was returned without a mark on it but with a small note attached that said, "See me about this. N.A.W." When I went in expecting to be praised for writing such an erudite paper at such an early age, he started by saying, "You have a vocabulary of four hundred words and you need a vocabulary of four thousand words." Over the next three hours he analyzed every sentence in the paper, pointed out every error in syntax, suggested numerous word changes, and rearranged my thoughts in logical fashion. He must have done that 500 times for all of us. To the best of my knowledge he never agreed to being listed as a co-author unless he actually performed some experimental work. The reward for the faculty was not that they had a polished manuscript after he edited it; anyone with editorial experience could have provided that, although perhaps not as generously. The real treasure, at least for me, was that I became so stimulated by what I saw him do and wanted so much to be able to command the language as he did that I paid an assistant professor in the English Department \$5 an hour to tutor me in English composition. The English Department at the University of North Carolina is unquestionably one of the best in America; I never had a teacher in that department, however, who made me love the language and want to be able to use it the way my professor of surgery did. Womack was the second member of the medical school faculty to be appointed a Kenan Professor (the first being William "Billy" MacNider). Leaders in the English Department played a key role in his selection.

Womack's love of books came through in many ways. He had recall memory for much of what he read. Most of the non-surgical reading many of us did was the result of great books which he introduced during conversations or conferences. He had a superb library, seemed happy to lend books, and from time to time would give one of us a book from his own collection. Once while talking with Dr. Womack in his office, we were interrupted by a telephone call from the

wealthy (and sometimes doting) mother of one of our chief residents. She called to ask Dr. Womack's advice about giving a present to her son in honor of his completing the residency. Womack responded, "You have already given him an airplane, a boat, and a car (which she had). Why do you feel anything else is necessary now?" She replied that it was such an honor for her son to complete his education that she wanted to mark the occasion by giving him a present. "Very well," said Womack, "give him a book." There was a moment of silence and obvious disappointment was registered in her voice. She finally asked, "What book?" "It doesn't matter," retorted Womack, "give him any book. What Jasper (not the correct name) needs now more than anything is to read a book."

Research, which reflected his insatiable curiosity and continued search for better understanding, did not come easily for Womack. He believed in the importance of surgical research and he also observed that, in departments where the chairman performed research, others did also. He wanted to be a leader in the first department of surgery in research activities but he did not have natural aptitude as a bench scientist and had almost no training in laboratory technique. He forced himself to go to the laboratory occasionally but it was usually embarrassing to him and to those who were willing and able to do the bench research his ideas generated. Truly he exemplified the wisdom of Oppenheimer's observation that Fermi was the last physicist who was both a successful theorist and a successful experimentalist. Oppenheimer did not believe that a scientist could do both in modern times because experimental capabilities were too restricting to theoretical explorations. Womack was a brilliant theorist—fifty years ahead of his time—in the fields of portal circulation and the biology of cancer. A steady stream of original ideas from his fertile mind was always available to hotshot technicians who might not seem to have thoughts of their own. Although some useful data, much of it negative, did come from the laboratory he supported, his thoughts about hyperdynamic circulation in viscera being primarily an arterial, not an outflow problem, his theories on formation of gallstones, and his appreciation, 25 years in advance of any other surgeon, of the biological determinants in breast cancer have withstood the test of time. Of course, he was wrong on some issues, particularly the biology of gastric and duodenal ulcer.

Womack's tenure at North Carolina was the last of a great era in American surgical education. The first department of surgery at the University of North Carolina was one of the last departments in America that reflected strong leadership of a single individual. Beginning in 1948 with appointment at age 35 of Francis Moore to Cushing and Cutler's chair at the Peter Bent Brigham Hospital, a steady trend in the appointment of young men to department chairmanships in surgery emerged. Womack disapproved strongly of this trend. He saw the position of departmental chairman as a bad compromise for a productive academic surgeon and felt that it was his duty to protect those who studied and worked with him from assuming administrative responsibilities.

Perhaps consequently, only two members of the first department of surgery moved directly to departmental chairmanship positions; only three of the hundreds of students and residents who studied with him became departmental chairman and he did what he could to discourage them. The reason was that his perception of the changes in medical school administration emerging in American medical schools mitigated against development of scholarly endeavors. He felt even more strongly about the position of dean. To Womack, a dean of a medical school should be a beloved and respected senior member of the faculty who, at the end of a productive career in research and teaching, took on responsibilities of the dean for the last five years or so as a sacrificial act so that others could have parking places and telephones. Under his definition, a dean would be the most appreciated and admired member of the faculty: appreciated because of the services he rendered the faculty and admired because of a lifetime of academic achievement which would give him the only kind of power that Womack thought meant anything in an institution of higher learning—the power of respect. The concept of a lifelong professional administrator in the position of department head or dean was abhorrent.

He did see the change coming, however, and wanted to protect his men from it. He began to realize during later years that a single chairman and secretary could not run a modern department as a benevolent dictatorship forever, and that medical schools were simply becoming too large, too expensive, and too politically important to be administered by a semi-retired favorite member of the faculty with no previous administrative experience. During his last year he once said, "You fellows (the faculty, all males then) wouldn't put up with me another year the way I have been running this department." Perhaps we would not have but all of us felt it had been a memorable experience to have Nathan Womack as our department chairman, to be part of a young department during formative years, and to study under a chairman who was truly a product of a generation of surgeons and an educational philosophy and discipline that have passed from the scene. The years when the department was small, when there was little or no competitiveness between individuals or subspecialists, and when the chairman was so senior that administrative matters were entrusted entirely to his office was a unique experience. One of the penalties of success, however, is inevitable growth and, finally, bigness with all of the attendant problems. Thus the first department of surgery at the University of North Carolina under Nathan Womack's leadership provided a few fortunate individuals a unique opportunity to work and develop in a system that simply isn't possible in a modern multiversity today.

It would not be correct to conclude that the first department of surgery under Womack's leadership, even though it enjoyed the advantages he and the university provided at that unique period, was ideal in every respect. It was not. For example, some surgical specialties did not develop as rapidly or as fully as they would have under other leadership. Womack's commitment to the old Hopkins tradition that general surgery is dominant in surgical education kept some

specialties, particularly anesthesiology and ophthalmology, in a subservient role as long as he was chairman. Other specialties, such as thoracic surgery, plastic surgery, pediatric surgery, vascular surgery, and oncologic surgery, developed only as it was possible within the framework and the confines of the general surgery curriculum. Transplantation, for instance, was not even started at the North Carolina Memorial Hospital until Womack's successor took over. The inescapable conclusion, of course, is that a modern department of surgery in a great university is too complex for a single individual, no matter how broadly educated or experienced he might be, to comprehend and administer in an autocratic way. Some of Womack's principles and the success of his administration, however, are applicable today at division and sectional levels even if they are not applicable to departmental or medical school administration. Womack, perhaps more than any other educational leader, recognized and thought important the real and perceived differences

between a medical school and a school of medicine—between a university hospital and a medical center. He lived these differences as chairman and made others believe in them. That was really the root of all of the characteristics that made Nathan Womack a unique and effective leader, and service in the first Department of Surgery at the University of North Carolina an experience of rare quality and fulfillment. □

Acknowledgement

Appreciation is expressed to Drs. C.G. Thomas, R.M. Peters, Robert Zeppa, and to Chancellor Emeritus W.B. Aycock for sharing their remembrances of Nathan Womack and the first Department of Surgery at the University of North Carolina.

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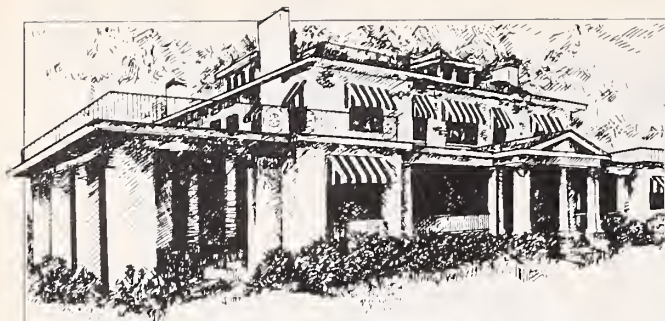
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BRIEF SUMMARY

CONTRAINDICATIONS

There are no known contraindications to the use of sucralfate.

PRECAUTIONS

Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that simultaneous administration of CARAFATE (sucralfate) with tetracycline, phenytoin, digoxin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The clinical significance of these animal studies is yet to be defined. However, because of the potential of CARAFATE to alter the absorption of some drugs from the gastrointestinal tract, the separate administration of CARAFATE from that of other agents should be considered when alterations in bioavailability are felt to be critical for concomitantly administered drugs.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Chronic oral toxicity studies of 24 months' duration were conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). There was no evidence of drug-related tumorigenicity. A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies were not conducted.

Pregnancy: Teratogenic effects. Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients treated with sucralfate, adverse effects were reported in 121 (4.7%).

Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

OVERDOSAGE

There is no experience in humans with overdosage. Acute oral toxicity studies in animals, however, using doses up to 12 gm/kg body weight, could not find a lethal dose. Risks associated with overdosage should, therefore, be minimal.

DOSAGE AND ADMINISTRATION

The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

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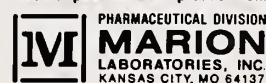
CARAFATE (sucralfate) 1-gm tablets are supplied in bottles of 100 (NDC 0088-1712-47) and in Unit Dose Identification Packs of 100 (NDC 0088-1712-49). Light pink scored oblong tablets are embossed with CARAFATE on one side and 1712 bracketed by C's on the other.

Issued 1/87

Reference:

1. Eliakim R, Ophir M, Rachmilewitz D: *J Clin Gastroenterol* 1987;9(4):395-399.

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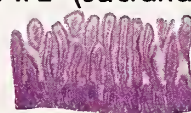
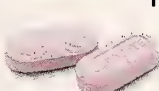
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Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in

moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.

- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] and toxic epidermal necrolysis or the above skin manifestations accompanied by arthritis/arthralgia, and frequently, fever): 1.5%, usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%, and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinistest[®] tablets but not with Tes-Tape[®] (glucose enzymatic test strip, Lilly).

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J. Seaborn Blair, Jr., M.D., Family Physician of the Year

Setting the Example for a Life of Community Service through the Practice of Medicine

George R. Parkerson, Jr., M.D., M.P.H.

J. Seaborn Blair, Jr., M.D., has been named Family Physician of the Year by the American Academy of Family Physicians in recognition of his service to the people of Wallace, North Carolina, and Duplin County over the past 39 years. He was chosen by a national panel over the candidates from other states because of his exemplary provision of comprehensive and compassionate medical care, participation in community activities that enhance the quality of life of his home area, and performance as a physician role model to patients, colleagues and medical students.

Dr. Blair is still going strong. His great energy and zest for life, his unfailing interest in the people he serves, and his unselfish and accommodating style provide a special quality and power for his work. He practices family medicine in Wallace, is active in community affairs, and teaches medical students.

His commitment to teaching has been a significant component of his career. He commutes to the East Carolina University School of Medicine to teach medical students in their introduction to medicine course, and he teaches students from the Duke University School of Medicine in his office practice during their family medicine clinical clerkship. For these future physicians he

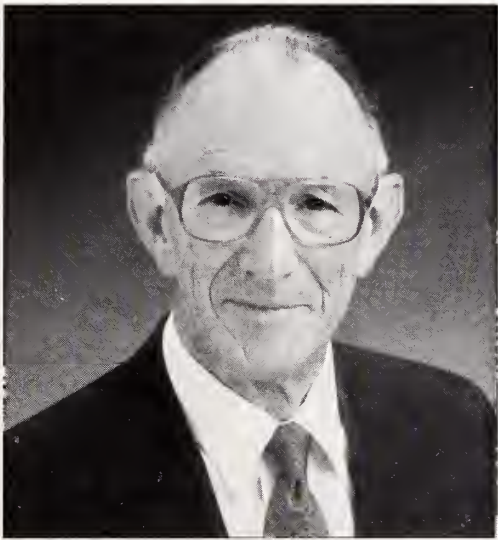
serves as a real-life role model for a medical career in the rural setting that can be personally and professionally rewarding.

Seaborn Blair is a native North Carolinian who continues a long family tradition of providing physicians for the state. His great-grandfather and grandfather were general practitioners. Dr. Blair attended medical school at the University of

North Carolina for his first two years and was graduated from the University of Maryland School of Medicine in 1947.

His oldest daughter, Betsy, is a pediatric resident at the University of North Carolina School of Medicine, and his two sons, Mott and Seaborn III, are family medicine residents at East Carolina. Mott Blair plans to return to Wallace to practice with his father.

The medical profession can be proud of this physician, who has upheld all of the finest traditions of medicine throughout his career. He is a living example of what a dedicated practicing physician can contribute to his patients and his community through a lifetime of service. J. Seaborn Blair represents the best in our profession and fully deserves the honor of Family Physician of the Year. □



J. Seaborn Blair, Jr., M.D.

From Professor and Chairman, Department of Community and Family Medicine, Duke University Medical Center, Durham 27710.

Ewald W. Busse, M.D., Sc. D. (Hon)

A Physician Who Made a Difference

Assembled and Edited by John A. Fowler, M.D.

Ewald W. Busse was born in St. Louis, Missouri. After graduating from Washington University in Medicine, he began a distinguished career in Neuropsychiatry with the Armed Service and the University of Colorado Medical Center. It continued at Duke in 1953, moving from Department Chairman of Psychiatry, J.P. Gibbons Professor of Psychiatry, and Founder/Director of the Center for the Study of Aging and Human Development, to Associate Provost and Dean of Medical and Allied Health Education. Because of his achievements, he received an Honorary Doctor of Science degree from Westminster College. Currently he is President of the North Carolina Institute of Medicine. The North Carolina Medical Journal is pleased to honor this remarkable physician by publishing these reminiscences from his former students, residents and colleagues at Duke.

of Ewald Busse.

No more fortunate choice could have been made. Busse developed a department soundly grounded in the research disciplines undergirding current psychiatric progress. Even more impressive was his ability to recruit and retain his clinical faculty. The practicing psychiatrist at Duke faced a much higher overhead charge than a psychiatrist practicing in the community. These overhead charges were essential for developing physical facilities and for supporting education and research programs. Busse triumphed over all difficulties and laid the basis for our outstanding department of psychiatry.

It gives me great pleasure to acknowledge Duke's debt to Busse and to record his achievement in the pages of the North Carolina Medical Journal.

Prologue

Eugene A. Stead, Jr., M.D.
Florence A. MacAllister Professor Emeritus,
Department of Medicine

In 1952 Dean Davison appointed a search committee to recommend the person to chair the Duke Department of Psychiatry. Prior to the selection of Busse, the search committee submitted to the executive committee of the medical school the name of a psychiatrist with no achievements in research and with no record of scholarly communications addressed to the biologically oriented disciplines underlying medical practice. We pointed out that the proposed candidate would have little standing with his Duke colleagues and recommended that the committee be charged to renew its search for a candidate more in keeping with the Duke tradition. The search committee brought us the name

The Record

John A. Fowler, M.D.
Professor Emeritus, Department of Psychiatry

Psychiatry

In the early 1930s Duke University School of Medicine was one of the first private hospitals in North Carolina to establish a Psychiatric Service. It began as a division of Psychiatry within the Department of Medicine. It became a small Department of Psychiatry when Bud Busse arrived as Chairman in 1953. There were a few inpatient beds in the hospital, offices were housed in a nurses' dormitory, the Outpatient Clinic was in an army barracks, and a Child Guidance Clinic was located in a residential home.

In 1949 I was a psychiatric resident at the University of Colorado Medical Center where Bud Busse headed up the Division of Psychosomatic Medicine. He had already established foundations of knowledge and scientific inquiry in wide-ranging areas of Psychiatry that would sustain him throughout his career—psychodynamic psychiatry, neurophysiology, electroencephalography and gerontology. He

From Department of Psychiatry, Box 2906 Duke University Medical Center, Durham 27710.

maintained a keen interest in and knowledge of inpatient psychiatry, outpatient psychiatry, child psychiatry, community psychiatry and where it all came together—psychosomatic medicine. Bud would become known as teaching eclectic psychiatry with a pragmatic approach. This oversimplified description really represented a precise understanding in depth and breadth of how each professional discipline contributed to the overall objective. He was at ease with psychiatric nursing, psychiatric social work, clinical psychology, sociology and how psychiatry could interdigitate these areas of expertise with medicine. He took the long view with a compassion and humor always founded upon what was fair and right. So it was he developed multidisciplinary longitudinal studies.

When I was recruited by Bud Busse to Duke in 1953, I knew it was an opportunity to develop child psychiatry in North Carolina alongside the other exciting programs in psychiatry. Bud not only developed the programs, he recruited the faculty and funded the buildings to house them. On the occasion in 1974 of his move from Department Chairman to Dean of Medical Education at Duke, I had the privilege of presenting the faculty's tribute to him. In part, it read, "But most of all, we want to honor you for your outstanding contributions to us—the faculty. Through your leadership in academic scholarship, scientific inquiry, research attitude and creative ingenuity, you have provided us with the ingredients for our own growth and development."



Ewald W. Busse, M.D., Sc.D. (Hon.)

George L. Maddox, Ph.D.

Professor of Sociology, and Chairman, University Council on Aging and Human Development

Gerontology

On the occasion of the 30th anniversary of gerontology at Duke University in 1985, the University Board of Trustees honored E. W. ("Bud") Busse by naming the facility housing Duke's nationally and internationally recognized programs in aging and human development "The E. W. Busse Gerontology Building." This honor seemed especially fitting because, in a sense, the Duke Center for the Study of Aging and Human Development is very much the house that Bud built.

The roots of Dr. Busse's interest in human aging lie in his electroencephalographic research which he began early in his career at the University of Colorado. That work

suggested patterns of age-related changes in brain functioning which appeared to be affected not only by biology but also by socioeconomic factors such as income and education. These initial observations stimulated the beginning of what came to be called the Duke Multidisciplinary Longitudinal Studies of Normal Aging. These studies earned a reputation for revolutionizing thinking about later life by suggesting the modifiability of many aging processes and by laying the groundwork for a realistically optimistic view of the later years. The contributions of the Duke Longitudinal Studies were recognized by the award of the Sandoz International Prize for longitudinal research in 1983; an overview of well over 1,000 publications based on these studies was published coincident with the 30th anniversary celebration.

Bud Busse has served as president of both of the major national organizations in aging—The Gerontological Society of America (1967-1968) and the American Geriatrics Society (1975-1976). He has received all of the major prizes in aging for distinguished research and service including the Kleemeier Award and the Brookdale Award. He also has served as a member of the National Advisory Council on Aging of the National Institute on Aging, National Institutes of Health. His stature as one of the world's leaders in gerontology is affirmed by his election as President of the International Association of Gerontology (1985-1989).

Colleagues of Bud Busse applaud him publicly in recognition of his distinguished contributions to gerontology and geriatrics nationally and internationally. Privately they appreciate him even

more as a colleague who is a team player and an institution builder. He has made a major contribution to his University through the development of Duke programs as a national force in demonstrating the integration of research, training, and service in gerontology and geriatrics. He is a careful scientist, a good administrator, and superb colleague. He has given a great deal of himself in promoting the careers of younger colleagues who, in turn, have repaid him with continuing and expanding the work which Bud Busse began. Many scholars and scientists in gerontology and geriatrics at Duke over the past three decades will never forget a famous institution of the Busse Era—The Monday Night Meetings. Rain or shine, year 'round, investigators in aging studies met at the home of Bud and Ort to discuss and plan their work. In the informal socializing that provided relief in the middle of these two-hour meetings, Ort Busse always joined Bud to make the evenings pleasurable and memorable.

In gerontology and geriatrics, Bud Busse made a difference.

Sanford I. Cohen, M.D.
NIMH Visiting Research Scientist, and Professor and
Chairman, Division of Psychiatry, Boston University
1970-1986

Psychophysiology

I met Bud Busse in 1952 when I was a first-year resident in psychiatry at the University of Colorado Medical Center in Denver. At the suggestion of Al Silverman, my first-year supervisor, Bud invited me to accept a position as a senior resident and research fellow in psychosomatic medicine at Duke University where he had just accepted the chair of psychiatry. Naturally, I was pleased and honored that he recognized my embryonic talents and interests in mind-body integration. More importantly, this act of recognizing the potential of a young neophyte reflected one of Bud's characteristics which would propel him to the forefront of major leaders in medical education in the 20th century. Even as he was confronted with the immense task of developing a major academic department, he recognized the importance of recruiting inexperienced but potentially capable persons. He recruited me with the hope of eventually developing areas which were not as yet recognized as important or even appropriate in psychiatry—namely, to integrate social, developmental, psychodynamic and neurobiological perspectives in a comprehensive approach to psychiatric issues. Even more impressive was Bud's goal to bring this multi-systems perspective into collaborative programs involving psychiatry and medicine. This effort to integrate physical and mental health and to introduce methods and findings from laboratory research into clinical practice were interests which would not emerge as significant in psychiatry for decades. Psychiatry at that time was dealing with a limited number of clinical problems in a narrow and often unscientific manner. Hence, from the very onset, Bud pursued a path out of the psychiatric mainstream current at that time.

My appointment as a Research Fellow in psychosomatic medicine and as a senior resident assigned to the medical service may have reflected Bud's desire to undo the stereotype of the psychiatrist as a doctor who was "afraid of the sight of blood." Bud not only tried to undo the rigid attitudinal sets which had developed about psychiatry, but he immediately established research as an essential component of academic psychiatry. Information derived from scientific investigations as the data base for clinical practice, rather than untested theoretical formulations, became the primary objective.

After completing one year at Duke, I went off to serve two years in the Air Force, which fortuitously allowed me to engage in psychophysiological research on the influence of stress and emotional states on vascular and hormonal functions involved in high speed flight (g-tolerance). In addition, I participated in studies of the effects of altered and strange environments (isolation, sensory deprivation) on psychological and physiological responses. When I returned to Duke, Bud vigorously encouraged me to pursue a full-time

research career in psychophysiological research. He clearly recognized the important implications of this research for psychosomatic medicine. Further he anticipated the current neurobiological research explosion by his active support of our early studies of the influence of catecholamines and adrenal steroids on responses to various laboratory and life stresses. His vigorous support was reflected by his presenting me as Duke's nominee for a Markle Fellowship. This was a bit risky since no psychiatrist had ever been nominated by Duke, and only one had been appointed as a Markle Scholar nationally. The breadth of Bud's vision was also demonstrated to me by his encouraging my interest in psychoanalytic training in addition to my neuroscience research activities. At a later point, he provided significant material support for the development of a clinical psychosomatic unit which attempted to integrate research methods into the clinical setting.

I have presented this brief review of my professional development at Duke not merely as a narcissistic reverie, rather I think the history of the support Bud provided for me is a microcosm of the broader range of his activities which reflect the vision and foresight he has shown in identifying key issues well before they are recognized by others.

If it sounds as if I viewed Bud as a father figure, I think I did. This is verified by the change in my attitude over the years. Each year that passes I realize the extent of his wisdom and competence. I became aware of how smart Bud really was when I became a chairperson. This is not unlike a son recognizing his own father's wisdom after he becomes a father. One of Bud's most remarkable abilities was not only to develop and lead a complex organization but to mature the careers of young professionals. Further, he has an ability to indicate what he doesn't know, which initially led me to mistake this for a lack of knowledge in an area in which I had developed expertise (which he supported). I eventually became aware that Bud Busse had an ability to honestly appraise his own capacities and a willingness to encourage and support the growth of others and to recognize the abilities of others.

It is a great honor and pleasure to be able to recognize the remarkable contributions of Ewald Busse to psychiatry and medical education. However, it is a special joy to be able to recognize Bud Busse's contribution to my professional and personal growth.

H. Shan Wang, M.D.
Professor of Psychiatry

Electroencephalography

In my residency years at Duke, I knew Bud Busse as an outstanding teacher, clinician and administrator. Since my return to Duke in 1964 I have worked closely with Bud and his team, learning of his expertise and achievement in research, including electroencephalography.

While Bud was a faculty member at Colorado Univer-

sity, he already recognized that changes of electroencephalogram (EEG) occur commonly with aging. He was one of the first to describe the focal EEG abnormalities predominantly over the anterior temporal areas of the brain in the healthy elderly. He continued to investigate the clinical significance of these EEG changes after he joined Duke University. In spite of his responsibilities in numerous areas within or outside of Duke University, he has always taken time to work actively with other investigators in this area.

While pursuing his scientific inquiry into EEG, Bud recruited a large number of capable researchers of different disciplines to work with him. This, under his leadership, resulted in the evolution of the Duke University Center for the Study of Aging and Human Development and the two renowned longitudinal studies on normal aging.

Another of Bud's talents was to inspire, encourage and pressure, if necessary, investigators of his team to develop many satellite research projects. These research activities and the two longitudinal studies led to a greater understanding of various biopsychosocial factors affecting normal aging and the development of the non-invasive Xenon-133 inhalation method for measuring regional cerebral blood flow, which is specifically memorable for me. Almost all available approaches, short of brain biopsy, have been attempted to understand these EEG changes with aging. This is still an unfinished task. After 40 years, the focal EEG changes over the temporal areas seen in about one-fourth of older persons are still considered clinically insignificant, but these changes surely have helped us to understand a great deal more about aging. Knowing Bud's unyielding persistence in research, it would not be a surprise if he were still investigating...

Dedication of the Gerontology Building in Honor of Ewald W. Busse, M.D., October 12, 1985

Juanita M. Kreps, Ph.D.

J.B. Duke Professor Emerita of Economics, and
Former Secretary of Commerce of the United States

Today we hear a great deal about the need to develop leadership, and since there is no clear definition of the term, any number can play. Some would have us develop our leadership skills in politics or in public service (by inference, these call for quite different capacities); others are in hot pursuit of corporate leadership, for which financial success is still the most widely accepted though by no means the only measure. We hear also of scientific or, more broadly, intellectual leadership, again with little instruction on what it would mean to be an intellectual leader.

The vague terminology is troublesome. But in the case of the Center for the Study of Aging and Human Development and, in particular, the man we honor today, I am prepared to assert unabashedly that both qualify as leaders—leaders not just in the sense of being in the forefront of medical studies, but far more broadly, in stimulating new and

exciting approaches across a wide range of disciplines; leaders not merely at Duke, but nationally and internationally; not only for excellence in research, but for policy formation and practical applications as well.

Indeed, it is this breadth that has given the Center worldwide visibility and has established it as a major force in age-related studies. During three decades of service to the field of aging, the Center's work has broadened in scope from research, to the training of researchers, and thence to providing service to practitioners and directly to the elderly themselves. Surely, in its fourth decade the Center can perform no greater service than to find ways to integrate the functions of research, teaching, and service in the light of our best knowledge on the complex questions before us. As Matilda Riley pointed out yesterday, until we do learn to make better use of scientific evidence we shall never be able to optimize the strengths of and the opportunities for older people.

The record of the men and women who have joined the Center is familiar to all students in the field, here and abroad. It is a record that runs through the learned journals in a score of disciplines, reporting findings that forever rob us of our most cherished clichés about the aging process. The recognition accorded the four directors of the Center—Drs. Busse, Eisdorfer, Maddox and Cohen—includes the highest offices in professional organizations, the most coveted awards for contributions to research and public service.

Under the direction of these four men, the Center—which in 1957 was designated by the U.S. Public Health Service as one of five regional resource units in aging—has sustained its momentum and today is the only comprehensive center for gerontology and geriatric studies in the nation.

To mark the progress made by many, Duke today honors the one who began the work of the Center; who for so many years has inspired all of us. Of your many colleagues, Bud, I am fortunate to be the one student of aging invited to speak today—to express our admiration and gratitude for your leadership. Each of us who has worked with you for these decades rejoices in this recognition of your professional achievement. We take great pride in what you began, and nurtured, and helped the study of aging to become. Your contributions to the fields of geriatrics and gerontology have influenced the thinking of an entire generation of scholars.

And so all of us—your longtime co-investigators, students, and good friends—join President Brodie and the entire University community in this tribute to your splendid record. It is meet and right so to do.

H. Keith H. Brodie, M.D.
President of Duke University

Twelve years ago, I was invited to breakfast by the man we honor here today. It was our first meeting. I wore sneakers and a sweater. Dr. Busse wore a coat and tie. Soon afterwards I received an invitation to meet with the Duke

search committee that was attempting to find Bud's successor as Chairman of the Department of Psychiatry. However, before I boarded the plane for the trip, Bud called. His message was clear. Appearances are important in the South. It's not California. Did I own a suit?

I share this vignette with you because it illustrates Bud's concern, his sensitivity, his ability to lead, to inspire in others behavior they might not otherwise display.

I followed a great man as I entered the chairmanship. His leadership in American psychiatry is legendary. He took the long view, and throughout his twenty-one years of building and shaping the Psychiatry Department at Duke, he invested in junior faculty, recruited outstanding residents, encouraged countless medical students to enter the field, and developed a department with balance and depth.

He had assembled at Duke a core of outstanding social scientists, psychologists, biomedically-oriented psychiatrists, and superb therapists gifted in psychoanalysis, psychopharmacology, group therapy, and family therapy. What a department Bud built—and what outstanding men and women he recruited to the Duke campus.

Eight of his faculty went on to become department chairmen. He facilitated hundreds of outstanding careers for his graduates. He has served as president of every major organization in American psychiatry. As the 100th President of the American Psychiatric Association, the nation's oldest medical specialty society, Bud brought his leadership focus on the educational process. He positioned the APA and the American Association of Psychiatry Chairmen, of which he was also President, to begin a gradual increase in the number of American medical graduates entering the specialty of psychiatry. His department served as a national model of excellence. New medical schools and old used his blueprints to develop echoes of the Duke eclectic tradition across the land.

Bud has received every major honor awarded in psychiatry—the Strecker Award, the Menninger Award, the Modern Medicine Award, and the Salmon Award—to name but a few.

Following his presidency of the APA, Bud was asked to assume the leadership of its Ethics Committee—a tough assignment he handled with distinction. He developed an international reputation in geriatric psychiatry and served as Chairman of the World Psychiatric Association's section on Geriatric Psychiatry. He chaired the World Health Organization's section on Psychogeriatrics.

Bud is extraordinarily well published. Seven books are among the two hundred works he has produced. He has served fourteen journals in an editorial capacity. What is remarkable about his publications lists is that his contributions are across so many disciplines and are co-authored by so many different colleagues—many of whom went on to leadership positions in their many fields.

Of equal note is that while building American psychiatry, Bud was developing another field that has its locus of activity at Duke in the building we dedicate today.

It is rare to dedicate a building in honor of someone who

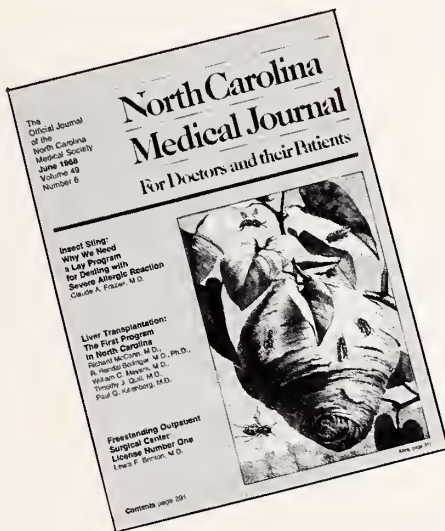
developed the programs that it protects, and who also developed the resources that funded its construction. But I have already noted that Bud Busse is no ordinary mortal, and his ability to identify the study of the aging process, to inspire in others the commitment to look at cerebral blood flow and longitudinal assessment, and to create data banks and training programs in a field many shunned as uninteresting, was extraordinary. Bud recruited the people, brought in the money, generated the ideas and put them together in this place. We dedicate this building in his name, and by so doing honor the man and the principles for which he stands: integrity, perseverance, leadership, hard work and extraordinary vision.

As we participate in this ceremony today, so may we rededicate our lives to these principles and instill them in all who study here. Long shall this building last, for it shall forever bear the name of one of Duke's greatest leaders. □

The contributions by Juanita M. Kreps, Ph.D., and H. Keith H. Brodie, M.D., were reprinted, with permission of the authors and editor, from Center Reports on Advances in Research (Duke University Center for the Study of Aging and Human Development) 1986;9(3):8-9.

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Letters to the Editor

On library services in North Carolina

To the Editor:

I was interested to read the article by Dr. Stead in the July, 1988 issue (49:360) concerning the National Library of Medicine and medical library services in North Carolina. In particular, I was pleased that the article challenged physicians to increase their use of information services, calling special attention to the software package called Grateful Med.

While the article makes an excellent point, I believe the reader might misperceive that practicing physicians in North Carolina lack reasonable access to modern library and information services. In fact, physicians and all health professionals in our state have easy day-to-day access at low cost to one of the most extensive medical library outreach systems on a statewide basis in our nation. This is the Library and Information Services Network of the North Carolina Area Health Education Centers (AHEC) Program. This network has been described by Siemers (The North Carolina AHEC Network. North Carolina Libraries 1984; 42 (Summer):73-7).

Hallmarks of the network include the following:

1. Existence of high quality health sciences libraries and learning resource centers in 12 AHEC settings serving all health professionals as well as health science students and medical residents in each region of the state.

The AHEC Library Network has made it possible for each of the four academic health science centers to rotate medical health science students of all types to community settings because they are guaranteed access to the same range of information services they enjoy while on campus.

The Network also guarantees access to up-to-date information for residency training programs in the community hospitals of North Carolina.

The Network is also a vital component of the AHEC continuing education system which delivers programs to health professionals of all types in classroom settings close to home.

2. Staffing of these libraries by 23 medical librarians trained at the master's degree level.

This staffing pattern assures practitioners of access to fully trained professional librarians and their support staff.

3. A commitment to service both at the AHEC library and in each county served by the library.

Several of the AHECs have extensive "circuit riding" activi-

ties and all have developed affiliated relationships with smaller libraries in the rural community hospitals. Increasingly, the libraries are developing affiliations with health departments, mental health centers, nursing homes, and other agencies.

During the year 1987-88, the AHEC Library Network provided the following services: 116,551 items circulated; 54,346 information requests answered; 25,680 items through inter-library loan; 8,690 online database searches conducted; 4,691 audiovisual programs produced.

4. A strong cooperative network relationship with the four academic health science center libraries.

The academic health science center libraries of the Bowman Gray School of Medicine, the East Carolina University Health Science Center, the Duke University Medical Center, and the UNC Health Science Center each give daily support to the AHEC librarians. This not only results in more comprehensive and efficient service to practitioners, but it provides a professional support system for the AHEC librarians which helps to keep them up-to-date and to decrease their professional isolation.

5. Access to online national databases.

Every AHEC library offers its region's health professionals and students access to the online databases of the National Library of Medicine. Additionally, because of the cooperative arrangements and outreach services of the regional programs, these services are often available in the town where the practitioner is working.

In each hospital that does not have a librarian there is a trained contact person who is familiar with the procedures involved in requesting an online search. In most cases, search results and follow-up can be completed for a practitioner within 24 hours. The libraries also have provisions for circumstances which warrant a faster response.

Further, all the AHEC libraries and some hospital libraries have access to a range of online databases offered by vendors other than the National Library of Medicine. MEDLINE is only one of these databases. With these resources and services available, it is clear that North Carolina physicians do not lack easy access to medical information.

6. Training for practitioners in the use of information technology.

The AHEC Library Network not only provides information services, it also provides training for practitioners in the use of information technology. One of the very important points of Dr. Stead's article is that community hospitals should help physicians gain access to the

"Grateful Med" program of the National Library of Medicine. For those physicians who are interested in using "Grateful Med" or other do-it-yourself searching systems, it is worth noting that both AHEC and hospital librarians are trained to work with these options.

The AHEC librarians are available to answer questions regarding microcomputer configurations and equipment requirements, training and support needs, estimated searching costs, system features, and both operational and policy issues. If they cannot answer a question they can receive assistance from their affiliated academic health sciences library. Stated another way they will help match a user's needs with the most appropriate system. Further, the librarians are ready to offer training and assistance to those who choose to do their own online searching. For further information, interested physicians or other health care professionals should contact their respective AHEC librarian.*

Eugene S. Mayer, M.D., Associate Dean
AHEC Program Director
UNC School of Medicine
Chapel Hill 27599

*Names, addresses, and telephone numbers of

AHEC librarians:

Julia R. Shaw, Associate Director Information Services
Area L AHEC
Health Education Foundation of Eastern North Carolina, Inc.
P.O. Drawer 7368
Rocky Mount, NC 27804-0368
919/972-6958

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Medical Library of Mecklenburg County
Bryant L. Galusha, M.D. Learning Resources Center of
Charlotte AHEC
1000 Blythe Blvd.
P.O. Box 32861
Charlotte 28232-2861
704/338-3129

Evangeline Norfleet, Outreach Services Coordinator
Eastern AHEC Health Sciences Library
East Carolina University
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919/551-2242

Barbara Wright, Director, Library/Information Services
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Fayetteville 28304
919/323-1152

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1200 N. Elm Street

Greensboro 27401
919/379-4483

Patricia Thibodeau, Director
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Shawn C. Sibley, AHEC Library Director
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Bowman Gray School of Medicine
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Winston-Salem 27103
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Phyllis Gillikin, AHEC Library Director
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P.O. Box 2600
Boone 28607
704/262-4398

Karen K. Grandage, Director, AHEC Library Services
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3000 New Bern Ave.
Raleigh 27610
919/755-8529

Penny Kearns, Librarian, Wilmington AHEC
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2131 South 17th St.
Wilmington 28402-9989.
919/343-0161.

Lynne K. Siemers, Head
AHEC Services Health Science Library
CB# 7585
UNC at Chapel Hill
Chapel Hill 27599-7585
919/962-0700

In appreciation of early medical history

To the Editor:

Bless you for the article on Gull's disease. The neuro-ophthalmologists have chosen to make all aspects of thyroid ophthalmopathy Grave's disease. There is but one ophthalmic voice in this wilderness pleading for the distinguished and erudite Doctor Gull. I will no longer have to appear an antique simpleton to my younger colleagues who had actually never heard of Gull's disease.

David E. Eifrig, M.D.
Professor and Chairman, Dept. of Ophthalmology
UNC School of Medicine
Chapel Hill 27514

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January 16-20

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Place: Winston-Salem

Credit: 7 hours per day, Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

January 20

Neurology Day

Place: Greenville

Credit: 6.5 hours Category I AMA

Info: Mary C. Valand, Office of CME, ECU School of Medicine, Greenville 27835-7224. 919/551-5200

January 23-27

Diagnostic Ultrasound: Neurovascular

Place: Winston-Salem

Credit: 7 hours per day, Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

January 30-31

Diagnostic Ultrasound: Transcranial Doppler

Place: Winston-Salem

Credit: 7 hours per day, Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

February 1-3

Diagnostic Ultrasound: Arterial/Venous Doppler

Place: Winston-Salem

Credit: 7 credit hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

February 3

Medical & Legal Aspects of HIV Infection and Transmission

Place: Greenville

Credit: 6 hours Category I AMA

Info: Mary C. Valand, Office of CME, ECU School of Medicine, Box 7224, Greenville 27835-7224. 919/551-5200

February 6-10

Diagnostic Ultrasound: Echocardiography

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

February 9-10

Future Directions in Care for Alzheimer's Disease Research Center Conference

Place: Durham

Credit: CEU

Fee: Penny Ligon, Staff Assistant, Third Annual Joseph and Kathleen Bryan Alzheimer's Disease Research Center Conference, 725 Broad Street, Durham 27705. 919/286-3228

February 10-11

Psychotherapy: Its Place in Psychiatric Treatment

Place: Research Triangle Park

Credit: Category I AMA, AAFP, CEU

Info: Cindi Easterling, Office of CME, DUMC, Durham 27710. 919/684-6878

February 13-14

Diagnostic Ultrasound: Urology

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

February 22

Prevention and Early Detection of Heart Disease and Cancer in the Physician's Office

Place: Chapel Hill

Credit: 6 hours, Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Bldg., Chapel Hill 27599-7000. 919/962-2118

March 3

Pediatric Day 1989

Place: Greenville

Credit: 6 hours, Category I AMA

Info: Mary C. Valand, Office of CME, Box 7224, Greenville 27835-7224. 919/551-5200

March 3-4

Advances in Cataract Surgery

Place: Durham

Credit: 10.5 Category I AMA, 1.05 CEU

Info: Cindi Easterling, Office of CME, DUMC, Durham 27710. 919/684-6878

March 10 & 11

Family Practice Update - Sports Medicine

Place: Greenville

Credit: 9 hours, Category I AMA

Info: Mary C. Valand, Office of CME, Box 7224, Greenville 27835-7224. 919/551-5200

March 15-19

Internal Medicine 1989

Place: Chapel Hill
Credit: 25 hours, Category I AMA
Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Bldg, Chapel Hill 27599-7000. 919/962-2118

March 31
Pulmonary Disease Update
Place: Greenville
Credit: 6 hours, Category I AMA
Info: Mary C. Valand, Office of CME, Box 7224, Greenville 27835-7224. 919/551-5200

March 31
Third Annual Coagulation Conference on Thrombosis and Hemostasis
Place: Chapel Hill
Credit: 6 hours, Category I AMA
Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Bldg., Chapel Hill 27599-7000. 919/962-2118

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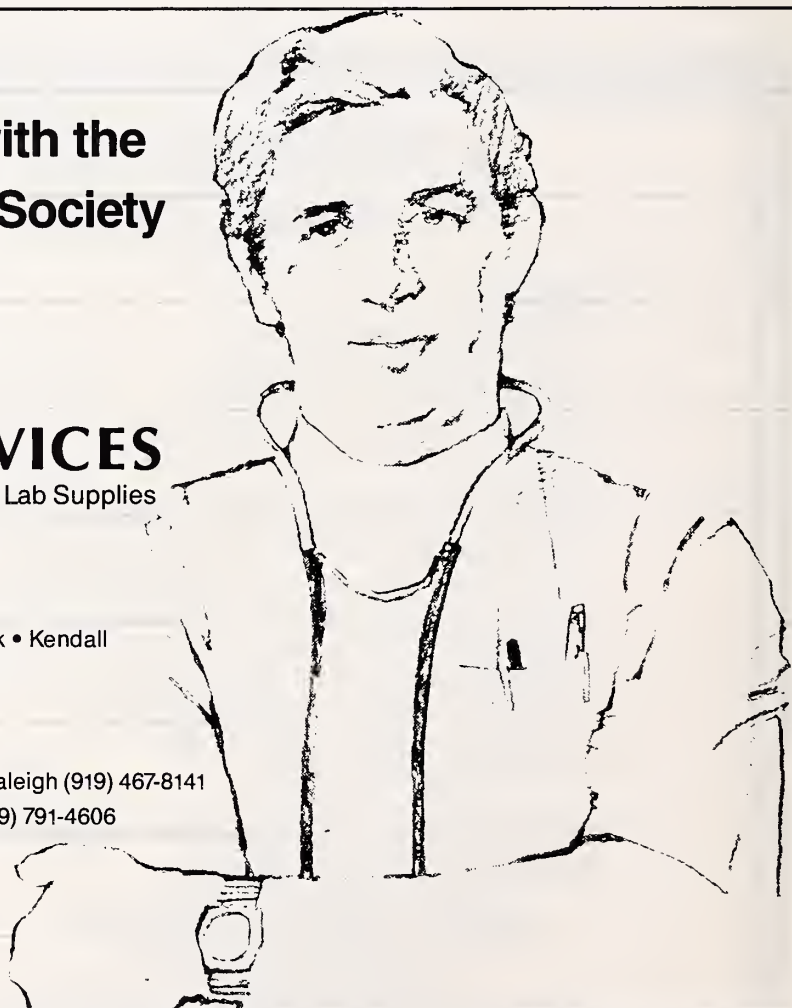
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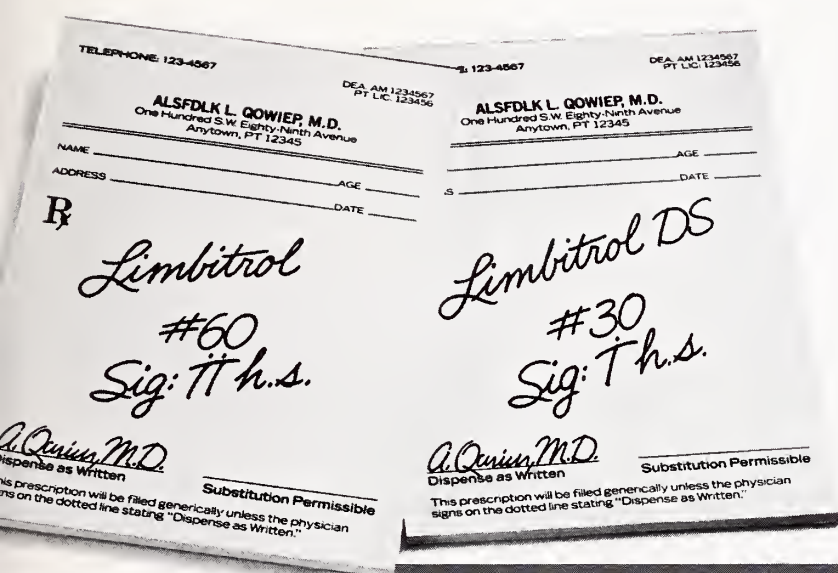


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References: 1. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 2. Feighner VP, et al: *Psychopharmacology* 61:217-225, Mar 22, 1979.

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Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants; concomitant use with MAOIs or within 14 days of monoamine oxidase inhibitors (then initiate cautiously, gradually increasing dosage until optimal response is achieved); during acute recovery phase following myocardial infarction.

Warnings: Use with caution in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur when used with anticholinergics. Closely supervise cardiovascular patients. Arrhythmias, sinus tachycardia, prolongation of conduction time, myocardial infarction and stroke reported with tricyclic antidepressants, especially in high doses. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

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Withdrawal symptoms of the barbiturate type have occurred after discontinuation of benzodiazepines (see Drug Abuse and Dependence).

Precautions: Use cautiously in patients with a history of seizures, in hyperthyroid patients, those on thyroid medication, patients with impaired renal or hepatic function. Because of suicidal ideation in depressed patients, do not permit easy access to large quantities of drug. Periodic liver function tests and blood counts recommended during prolonged treatment. Amitriptyline may block action of guanethidine or similar antihypertensives. When tricyclic antidepressants are used concomitantly with cimetidine (Tagamet), clinically significant effects have been reported involving delayed elimination and increasing steady-state concentrations of the tricyclic drugs. Use of Limbitrol with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Should not be taken during the nursing period or by children under 12. In elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects. Inform patients to consult physician before increasing dose or abruptly discontinuing this drug.

Adverse Reactions: Most frequent: drowsiness, dry mouth, constipation, blurred vision, dizziness, bloating. Less frequent: vivid dreams, impotence, tremor, confusion, nasal congestion. Rare: granulocytopenia, jaundice, hepatic dysfunction. Others: many symptoms associated with depression including anorexia, fatigue, weakness, restlessness, lethargy.

Adverse reactions not reported with Limbitrol but reported with one or both components or closely related drugs: **Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke. **Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania, increased or decreased libido. **Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns. **Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract. **Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus. **Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia. **Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue. **Endocrine:** Testicular swelling, gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion. **Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

Drug Abuse and Dependence: Withdrawal symptoms similar to those noted with barbiturates and alcohol have occurred following abrupt discontinuance of chlordiazepoxide; more severe seen after excessive doses over extended periods; milder after taking continuously at therapeutic levels for several months. Withdrawal symptoms also reported with abrupt amitriptyline discontinuation. Therefore, after extended therapy, avoid abrupt discontinuation and taper dosage. Carefully supervise addiction-prone individuals because of predisposition to habituation and dependence.

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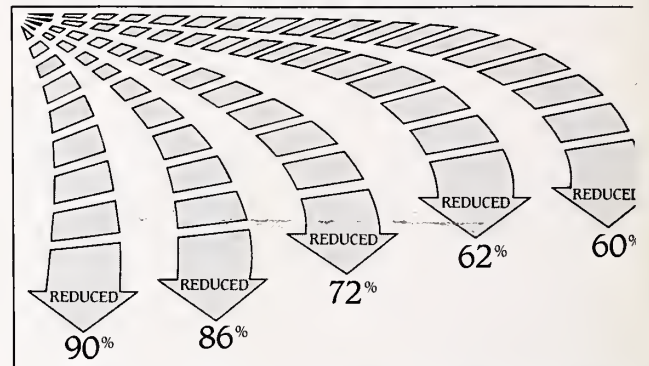
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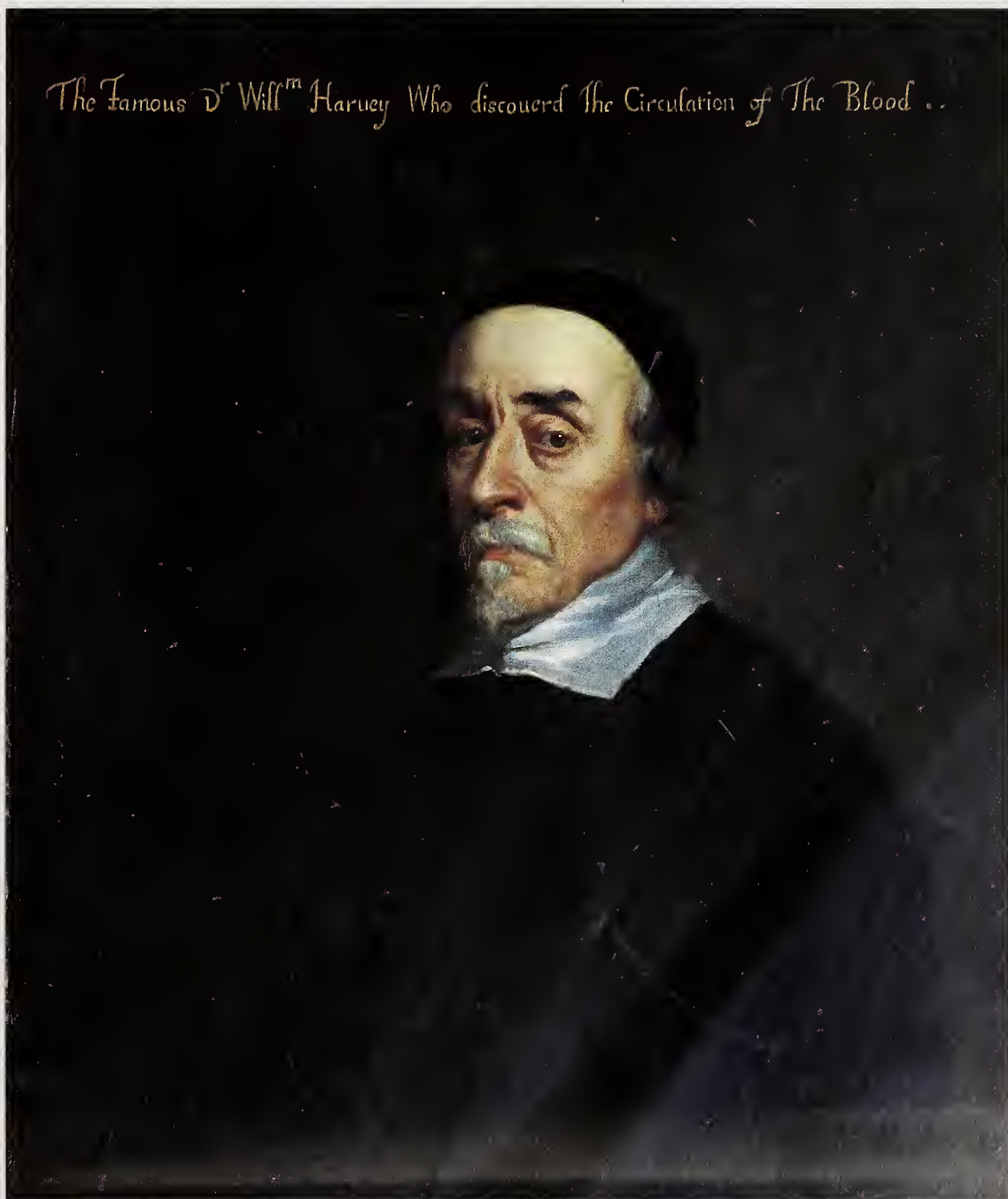
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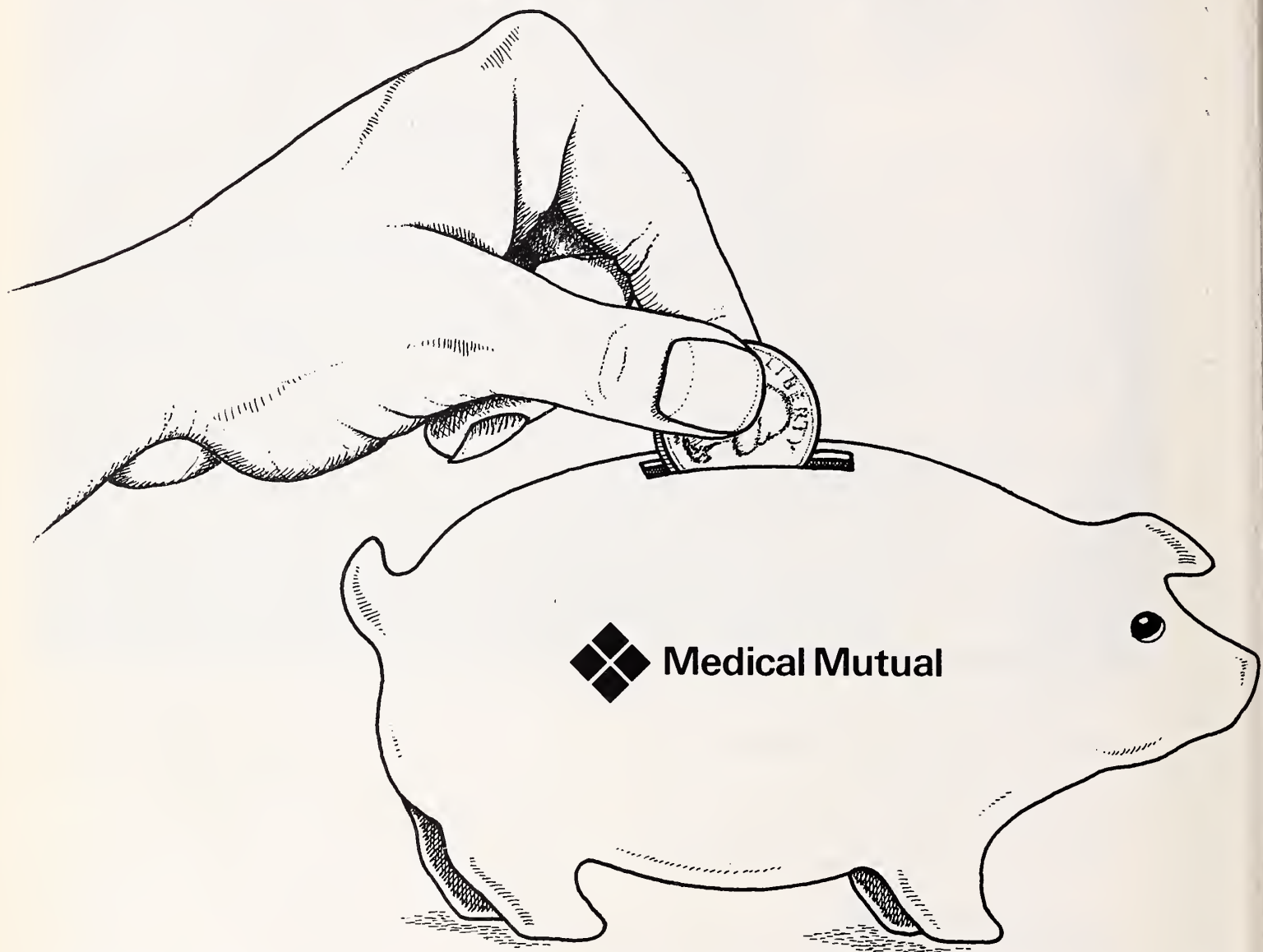
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Patient Acceptance and Cleansing Effectiveness of Golytely for Colon Surgery

Charles A. Herbst, Jr., M.D., Gil Schorlemmer, M.D., and Ron Wild, P.A.-C

One of the most important factors affecting the outcome of colonic surgery is the adequacy of mechanical cleansing of the bowel to reduce infections postoperatively. This is usually achieved with a liquid diet, purgatives, and enemas over two to three days prior to operation. This method provides satisfactory cleansing of feces from the colon but is time-consuming and associated with varying degrees of dehydration, starvation, and physical exhaustion. An alternate method produces volumogenic diarrhea by means of rapid ingestion of a balanced salt solution. This has been reported with promising results.¹⁻⁵ A nasogastric tube is usually required because fluids are salty and unpalatable. More importantly, because of fluid and electrolyte absorption, cardiac failure in patients with cardiovascular or renal disease may ensue. In 1980, Davis et al described a solution (Golytely) containing 125 mM/L sodium, 10 mM/L potassium, 80 mM/L sulfate, 35 mM/L chloride, 20 mM/L bicarbonate, and 80 mM/L of polyethylene glycol (PEG), which does not produce significant water and electrolyte shifts.⁶ Its effectiveness in preparing the colon for colonoscopy and radiologic procedures has been reported.⁷⁻⁹

This study was designed to compare patient acceptance and the mechanical cleansing effectiveness of Golytely^R (Braintree Laboratories, Inc., Braintree, MA) in one group and a traditional two-day liquid diet, purgative, and enema preparation for colon surgery in a second group.

Patients and Methods

Between January, 1983, and June, 1984, 47 hospitalized patients scheduled to have an elective colon resection were

assigned to either a traditional or Golytely mechanical bowel preparation. All patients with an odd hospital number were assigned to receive a traditional preparation and those with even numbers received Golytely. The study was approved by the "Committee on the Protection of Rights of Human Subjects" at North Carolina Memorial Hospital. Informed written consent was obtained. Patients requiring emergency surgery or with intestinal obstruction were excluded. The traditional preparation included two days of clear liquids, 240 ml of magnesium citrate (5.8% solution) on both mornings, and normal saline enemas until clear the evening before surgery. The Golytely preparation patients received a clear liquid breakfast the day prior to surgery followed by three to six liters (average 4.0 liters) of Golytely during a four-hour period (250 cc q 15 minutes until consumed). No cleansing enemas were given in the Golytely group. All patients in both groups received Neomycin, 1 gram, and Erythromycin base, 0.5 grams orally at 2 p.m., 3 p.m., and 10 p.m., and a 1% Neomycin retention enema at 10 p.m. the day before surgery. Cefoxitin, one gram intravenous was given on call to the operating room, and continued for three doses after surgery. Because of concern about dehydration, especially in the traditional group, all patients received an intravenous solution of 0.5 NSD₅ with 20 mEq KCL per liter at 80 to 100 ml per hour beginning at 6 p.m. the evening before surgery.

All patients were weighed, and serum sodium, potassium, BUN, and creatinine were measured before and at the completion of the bowel preparation. This was done before intravenous fluids were started at 6 p.m. Patients completed a questionnaire evaluating palatability, nausea, vomiting, cramps, and inconvenience. The questionnaire was graded: 1 (multiple complaints); 2 (complaints but tolerable); 3 (few complaints); and 4 (no complaints). The operating surgeon was asked to assess the adequacy of bowel preparation noted at surgery: 1 (gross stool and gas); 2 (moderate stool and gas); 3 (minimal stool and gas); 4 (no stool and collapsed bowel). All operations were performed by house staff with direct supervision of an attending surgeon. Diagnosis, type

From the Department of Surgery at The University of North Carolina School of Medicine, and North Carolina Memorial Hospital, Chapel Hill 27514.

of resection (right versus left), complications and pre- and postoperative length of stay were recorded. At surgery, swabs were taken from the mucosal surface and placed immediately in a balanced salt solution in agar for transport to the laboratory (Port-A-Cul, Baltimore Biological Labs), for aerobic and anaerobic cultures. Semiquantitative smears and cultures were obtained from mucosal samples and expressed as $>10^5$ or $<10^5$ organisms per gram of tissue. Aerobic culture media was MacConkey's agar, chocolate agar, and Columbia base blood agar with 5% colistin and nalidixic acid. Anaerobic culture media was phenyl ethyl alcohol (PEA) agar with vitamin K and hemin, brain-heart infusion agar with vitamin K and hemin and thioglycolate broth. Aerobic plates were incubated for 24 hours at 37°C with 5% CO₂. Anaerobic plates were incubated for 48 hours in an anaerobic environment at 37°.

Patient and surgeon assessments and bacteriological data were analyzed by Chi square analysis. The student T-test for paired and unpaired data was used to analyze laboratory and clinical results. Results were expressed as mean \pm SD. P values less than .05 were considered significant.

Results

There were 23 patients in the traditional preparation group and 24 patients in the Golytely group. Two patients refused assignment to the traditional group and requested Golytely. They were not included in the study. There were 27 males and 20 females equally divided between the groups. The mean age for the traditional preparation was 62.0 \pm 17.7 years and for the Golytely group 51.8 \pm 15.9 years (P<.025). Thirty-four of the patients had cancer with equal proportions in each group. Other diagnoses included arteriovenous malformation, ulcerative colitis, Crohn's colitis, sigmoid volvulus, familial polyposis, sigmoid diverticulitis, and sigmoid colostomy closure (table 1). All operations were categorized as right or left colectomy. In the traditional preparation group there were 11 right and 12 left. In the Golytely group there were 8 right and 16 left.

Pre and post bowel preparation weights were available for 18 patients in the traditional group and 17 in the Golytely group. In the traditional group, there was a significant mean weight loss from 68.3 \pm 14.1 kg admission weight to 67.1 \pm

14.0 kg post preparation weight (P<.005). The Golytely group had a mean admission weight of 70.5 \pm 16.4 kg compared to 70.3 \pm 16.4 after the preparation (NS). There was no significant change in sodium, potassium, or creatinine following either traditional preparation, Golytely preparation, or compared between groups. The BUN in the traditional group dropped significantly from an admission value of 13.3 \pm 4.6 mg/dl to 8.6 \pm 5.0 mg/dl post preparation (P<.005) (table 2).

Patient assessment favored the Golytely group significantly (P<.001) (table 3). The surgeons also favored Golytely over the traditional preparation (P<.05) (table 4).

Sixteen patients in the traditional group and 11 patients in the Golytely group had cultures of the luminal contents and semiquantitative cultures of bowel mucosa. There were no predominant aerobic or anaerobic organisms found in either group. Seven mucosal specimens in the traditional group had $>10^5$ organisms whereas only two specimens in the Golytely group had $>10^5$ organisms. However, this was not a significant difference.

Wound infection, anastomotic leak, and intraabdominal abscess were considered infectious complications which may have been related to the adequacy of bowel preparation. There were four wound infections, two in each group (NS). Three of these occurred in patients undergoing total colectomy and proctectomy. There was no relationship of the four infections to surgeons' assessment of adequacy of preparation (grade 1 in two patients, grade 3 in one patient, grade 4 in one patient). Three of these patients had the incision left

Table 1. Patient Diagnosis

	Traditional	Golytely
Cancer	18	16
Ulcerative Colitis	2	2
Crohn's Colitis	-	1
Volvulus	1	-
Polyposis	1	-
Diverticulitis	-	3
AV Malformation	-	1
Colostomy closure	1	1
Total	23	24

Table 2. Laboratory Values

	Golytely			Traditional		
	Admission	Post Preparation	P Value	Admission	Post Preparation	P Value
Na	140.8	139.0	*	140.2	139.4	*
K	4.2	4.2	*	4.0	4.0	*
BUN	13.3	8.6	<.005	13.6	10.2	*
Creat.	1.1	1.1	*	1.1	1.0	*

*Not significant

open for delayed primary closure which was not done because of obvious infection at 48-72 hours. Other complications are listed in table 5.

Excluding patients who required prolonged preoperative management for medical problems and patients with postoperative complications, the preoperative length of stay was 2.6 ± 0.5 days for the traditional group and 2.1 ± 1.4 days for the Golytely group (NS). Postoperatively, the length of stay was 8.5 ± 1.6 days for the traditional and 8.0 ± 1.3 days for the Golytely group (NS).

Discussion

The purpose of mechanical cleansing of the bowel in elective colorectal surgery is to eliminate feces and gas to reduce bacterial contamination and ultimately the incidence of septic complications. Although the total number of micro-organisms is reduced by reducing the quantity of stool the concentration of residual microorganisms is unchanged by mechanical cleansing¹⁰ so that nearly all surgeons administer preoperative oral antibiotics. Indeed, septic complications occur in 43% of patients with a traditional two- to three-day liquid diet, purgative, and enema mechanical preparation compared to 9% of those given a mechanical preparation

plus antibiotics. Since the purpose of our study was to compare mechanical cleansing of the traditional preparation to Golytely, we administered identical antibiotics to both groups of patients.

Voluminogenic diarrhea in preparation for large bowel surgery was proposed in 1973 by Hewitt, et al¹ using a solution containing sodium, potassium, chloride, and bicarbonate. Although this and other solutions²⁻⁵ were shown to be effective in cleansing the bowel, large volumes were required and absorption of water and electrolytes made them risky in elderly patients with renal or cardiac disease. This prompted Davis, et al⁶ in 1980 to report their investigations with a new solution specifically designed to prevent these problems. With Golytely, sulfate was substituted for chloride to prevent electrolyte absorption and polyethylene glycol added to maintain osmolality and prevent water absorption. Compared to a traditional preparation of clear liquids, purgatives, and enemas, Golytely has been touted as a preparation that can cleanse the colon as effectively, is not associated with water and electrolyte imbalance, and is less distressing to the patient.

Both groups in our study were similar in size, sex, and diagnosis. The traditional group was older (62.0 ± 17.7 years) than the Golytely group (51.8 ± 15.9). We have no explanation for this difference. Two patients requested Golytely. Thus, there appeared to be some patient bias in favor of Golytely presumably through experience with colonoscopy exam or because of doctor's preference. We found a significant weight loss and BUN reduction following the traditional preparation but not with Golytely. Serum sodium, chloride, and creatinine were unchanged with either preparation. Intravenous fluids were given to both groups after measurements and therefore did not affect the study. In two other reports using Golytely in surgery patients, Fleites, et al¹² showed no significant weight loss for either group, whereas Beck, et al¹³ showed a significant weight loss in the traditional group but not with Golytely. Neither study mentions whether or not intravenous fluids were given during or after the preparation.

Patients' and surgeons' assessment must be accepted with caution in our study since it was impossible to conceal

Table 3. Patient's Assessment*

Grade **	# Patients	
	Traditional	Golytely
1	10	1
2	13	0
3	0	17
4	0	6

* Golytely was favored over traditional preparation ($p < .001$)
** 1 - multiple complaints
2 - complaints but tolerable
3 - few complaints
4 - no complaints

Table 4. Surgeon's Assessment*

Grade **	# Patients	
	Traditional	Golytely
1	0	1
2	8	1
3	11	11
4	4	11

* Golytely was favored over traditional preparation ($p < .05$)
** 1 - gross stool and gas
2 - moderate stool and gas
3 - minimal stool and gas
4 - no stool and collapsed bowel

Table 5. Complications

	Traditional	Golytely
Wound infection	2	2
Abscess	0	0
Leak	0	0
Stroke	1	0
Urinary	1	1
Gastritis	1	0
Pulmonary embolus	1	0
Pneumonia	1	0
SBO	1	0
Ileus	3	3

house staff enthusiasm for Golytely or to blind the operating surgeon as to which preparation had been used. Nevertheless, patients' assessment and surgeons' assessment favored Golytely over the traditional preparation. This is similar to findings by Thomas and coworkers in 20 randomized patients who were questioned after colonoscopy.⁷ Both preparations resulted in a feces free colon but with better patient acceptance of the Golytely preparation. Dipalma, et al⁹ used a questionnaire in 197 colonoscopy patients to compare three different traditional methods (clear liquids, laxatives, and enemas) to Golytely. They found the Golytely patients experienced less abdominal distress than the other three groups. They also compared colon cleansing scores and showed better cleansing with Golytely. More recently, Beck, et al¹³ compared a one-day Golytely and bisacodyl preparation to a traditional three-day clear liquid diet, cathartics and enema preparation in 60 patients undergoing colonic surgery. The patients receiving Golytely had significantly less symptoms and better colon cleansing.

Using semiquantitative bacteriologic studies we found only two patients in the Golytely group with $>10^5$ organisms per gram of mucosa compared to seven patients in the traditional group. Although not significant, it suggests more effective reduction of bacteria using Golytely. Using sigmoid aspirates, Fleites, et al¹² reported a reduction in anaerobic organisms using Golytely and oral antibiotics. Beck, et al¹³ showed no significant difference between groups using parenteral Cefoxitin as the only antibiotic. Our patients received both oral and parenteral antibiotics.

In our study, the infectious complications were two wound infections in each group. Since three patients had total colectomy and proctectomy and two were on steroids for ulcerative colitis, the infections seemed more related to the length of operation and immunosuppression than anything else. There was no relationship to adequacy or inadequacy of preparation according to the surgeons' assessment. Fleites¹² reported a similar experience with six septic complications in 53 patients and no significant difference between groups.

Although a major goal of Golytely is to reduce colon preparation time and hospital time, we showed no difference between groups in preoperative or postoperative length of stay in patients with uncomplicated courses. Insecurity with a new method probably explains why our preoperative length of stay was the same. We now routinely admit patients for Golytely the morning before the day of surgery.

We conclude that Golytely is as safe and effective as a traditional preparation and that it is better tolerated. Golytely may decrease preoperative hospital time. In our experience it is the mechanical preparation of choice for elective colorectal surgery. □

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Unusual Presentation and Successful Treatment with Cefuroxime

Michael L. Smith, M.D., Jon S. Abramson, M.D., Kenneth D. Hampton, B.S., and Benedict L. Wasilauskas, Ph.D.

Although salmonellosis is common in the United States, meningeal infections due to salmonella species are unusual. Saphra and Winter¹ reported that 0.8% of the salmonellae isolated from over seven thousand cases in their surveillance data came from cerebrospinal fluid (CSF). Data from the Communicable Disease Center show that 0.14% of all *Salmonella* isolates reported from 1968-1979 were from CSF.²

Bacterial meningitis in children usually presents with cerebrospinal fluid pleocytosis with a predominance of neutrophils, elevated protein, and hypoglycorrhachia. Lymphocyte predominance is unusual in acute bacterial meningitis unless the child has been partially treated or the causative agent is *Listeria monocytogenes* or *Mycobacterium tuberculosis*.

In this paper, we present a case of salmonella meningitis in which the patient presented with a predominance of lymphocytes in the CSF and was successfully treated with cefuroxime.

Case Report

A four-month-old black male presented to the emergency room with a two-day history of fever, irritability, anorexia and increased somnolence. The patient had received acetaminophen but no other medication. A maternal grandmother living in the household had recently had a diarrheal illness. The child appeared non-toxic and had a normal physical examination except for a slightly bulging fontanelle and fever of 104.3°F rectally. Laboratory findings included a negative sickle preparation, a peripheral white cell count of 31,900/mm³ with 52% neutrophils, 6% bands, 30% lymphocytes,

and 12% monocytes; a hemoglobin of 10.7 g/dl; normal urinalysis and normal chest roentgenogram. A lumbar puncture revealed cloudy CSF with 4300 white blood cells/mm³ (40% polymorphonuclear leukocytes and 60% mononuclear cells), 90 red blood cells/mm, protein of 112 mg/dl and glucose of 41 mg/dl (simultaneous serum glucose was 124 mg/dl). Gram stain and latex agglutination test for *Haemophilus influenzae*, *Streptococcus pneumoniae* and *Neisseria meningitidis* were negative.

The patient was admitted and cefuroxime therapy (225 mg/kg/day, divided every eight hours) was started after parental consent and randomization to the cefuroxime arm of a multicenter meningitis study protocol, comparing cefuroxime to the combination of ampicillin and chloramphenicol. Within 24 hours a *Salmonella* species was recovered from the CSF culture. Further identification showed the organism to be *Salmonella enteritidis*. Minimal inhibitory concentrations (MIC) and minimal bactericidal concentrations (MBC) of various antibiotics for this organism are shown in the table (next page). Urine, blood and stool cultures were negative.

The patient was less irritable and lethargic after 24 hours of therapy. A repeat lumbar puncture was done on day two of therapy. Examination of CSF showed 794 white blood cells/mm³ (50% polymorphonuclear leukocytes), 24 red blood cells/mm³, protein of 99 mg/dl and glucose of 46 mg/dl (serum glucose was 112 mg/dl). Culture and gram stain of CSF from the second lumbar puncture were negative. There was no bactericidal activity detected in the CSF (the lumbar puncture was done seven hours after the last dose of cefuroxime). A simultaneously obtained serum bactericidal level was 1:3.

The child continued to improve and was clinically well by day seven of therapy. A third lumbar puncture was done on day 11, to further assess the adequacy of the patient's therapy. It was a traumatic tap with 126,000 red blood cells/mm³, but only 73 white blood cells/mm³ (11% polymorphonuclear leukocytes); a protein of 228 mg/dl; and a glucose of 40 mg/dl. The culture was negative. He received a total of 28 days

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Table 1. Minimal inhibitory and bactericidal concentrations of various antibiotics against the *S. enteritidis* isolated from the CSF of this patient.

	MIC(μ g/ml)	MBC(μ g/ml)
Ampicillin	>16	
Chloramphenicol	4	
Cefotaxime	< 1	2
Cefuroxime	4	8
Trimethoprim-sulfamethoxazole	\leq 10	
Tobramycin	\leq 0.5	
Gentamicin	\leq 0.5	

of intravenous cefuroxime therapy and was discharged home in good condition with a normal neurological examination.

Approximately six weeks after the end of therapy, he presented to the outpatient clinic with a fever of 102°F, upper respiratory symptoms, diarrhea and anorexia. On physical examination, he was found to have an acute left otitis media. However, because of the risk of relapse with salmonella meningitis, he underwent a full septic workup. Laboratory values were as follows: peripheral white cell count of 22,800/mm³ with 41% neutrophils, 3% bands, 37% lymphocytes; hemoglobin of 11.6 g/dl; and a normal urinalysis. The CSF had 2 white blood cells/mm³, 2 red blood cells/mm³, a protein of 12 mg/dl and a glucose of 63 mg/dl. Gram stain was negative. Stool and spinal fluid cultures were negative. Blood culture grew alpha-hemolytic streptococci. The patient received a 10-day course of amoxicillin for his otitis media and did well. He has had subsequent evaluations revealing normal growth and development at 12 months of age.

Discussion

One of the interesting features of this case is the predominance of lymphocytes in the CSF of this patient on initial presentation. In the face of minimal clinical findings, the lymphocyte predominance of the cells in the CSF, negative CSF gram stain and latex agglutination, one could easily be misled to a diagnosis of "aseptic meningitis," with resulting delay in proper treatment. The only findings which prompted us to initiate antimicrobial therapy were the CSF pleocytosis of 4300 WBC/mm³ and mild hypoglycorrhachia (CSF glucose was 33% of simultaneous serum glucose). As early as 1904, meningitis with initial lymphocyte predominance in the CSF was identified in *S. typhi* infections.³ Subsequent case reports have also noted the finding of minimal CSF pleocytosis with lymphocyte predominance in typhoid meningitis.^{4,5} In contrast, untreated non-typhoid salmonella meningitis is associated with a predominance of polymorphonuclear leukocytes.⁶⁻⁸ In a review of the literature on non-typhoidal salmonella meningitis in North America we could find only three cases which involved lymphocyte predominance in untreated infections.⁹⁻¹¹ The vast majority of cases have shown neutrophil predominance in the CSF.^{5-8,12-18}

Treatment was continued with cefuroxime because of

the child's excellent clinical response and negative CSF cultures on repeat lumbar punctures at days 2 and 11 after initiation of treatment. We suspect the inadequate CSF bactericidal level was due to improper timing of the repeat lumbar puncture in relation to the time of cefuroxime dosing. The MIC and MBC of cefuroxime for this organism were 4 mcg/ml and 8 mcg/ml, respectively, indicating that the organism was sensitive to this antibiotic. Cefuroxime has been found to be an effective chemotherapeutic agent for the treatment of bacterial meningitis in children, with penetration into inflamed meninges giving good CSF levels.¹⁹⁻²² Peak serum levels of cefuroxime after doses of 200-250 mg/kg/day average 150 mcg/ml.³ Peak CSF concentrations after similar doses average 10-13% of serum levels.^{21,22} Cefuroxime appears to be a reasonable drug against salmonella species although some isolates have shown minimal inhibitory concentrations outside the sensitive range (i.e., salmonella strains with minimal inhibitory concentrations up to 12.5 mcg/ml have been reported¹⁷). Cefuroxime has been successfully used to treat salmonella meningitis resistant to multiple antibiotics including ampicillin and chloramphenicol.²⁴ The MIC studies indicated that the *S. enteritidis* isolated from this patient's CSF was resistant to ampicillin and had intermediate sensitivity to chloramphenicol. If the child had failed to respond, cefotaxime or trimethoprim-sulfamethoxazole would have been reasonable alternative treatment modalities for this organism^{16-18,25,26} (see table).

The clinical and microbiologic evidence of successful treatment in this patient supported continuation of cefuroxime monotherapy. However, the significant failure risk with various antibiotic regimens^{11,27} and the reported high relapse rate^{14,25} prompted close follow-up. Relapses have been reported as late as three months after diagnosis of the initial episode.²⁶ At subsequent evaluations this patient showed no evidence of relapse and his development at one year of age appeared to be normal. Our experience with this patient supports the use of cefuroxime for treatment of salmonella meningitis, although controlled studies are definitely needed before this could be recommended as first-line therapy for salmonella infections. □

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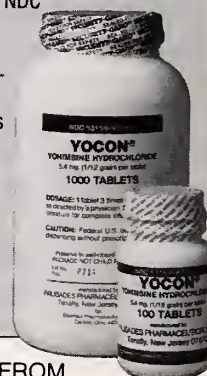
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Myxedema

An Historical Reconnaissance*

John H. Felts, M.D.

Schroering and Neelon's historical vignette⁴ about Gull's disease⁵ is particularly appropriate because 1988 marked the centennial of the publication of the "Report of a committee" of thirteen British physicians "appointed in 1883 to investigate the subject of myxedema."⁶ Gull's descriptions of five patients, two observed closely, had been preceded by the recognition that the absence of the thyroid gland was related in some way to cretinism. He cited the report of "Mr. Curling," who survives eponymically in Curling's ulcer, that "there was not the slightest trace of a thyroid body" at autopsy of a ten-year-old cretin.⁷ In his discussion Curling commented that "it is highly probable that the abnormal secretion of fat was dependent on the absence [of] the action of the thyroid." Gull's recognition that a cretinoid condition could develop in adults was followed by many reports, probably the most important being those of Ord⁸ and of Reverden, a Swiss surgeon,⁹ who stopped doing total thyroidectomies for goiter because of anemia and behavioral changes afterward.

The committee⁶ concluded that myxedema was a well-defined disease, most commonly observed in middle-aged women, with characteristic changes in skin, viscera, hair, speech, movement and thought, and occurring because of destruction of the thyroid gland. Some of the committee's conclusions were based on experiments carried out at their request by Sir Victor Horsley, later a pioneer neurosurgeon

remembered for his studies in cerebral localization using an early stereotaxic apparatus.

The short step to replacement therapy was taken by Murray,¹⁰ in 1891, who presented a typical patient, a 46-year-old woman, to his district medical society in February of that year, announcing that he planned treatment with a glycerine extract of ovine thyroid gland. Anticipating twentieth century concern for the research subject, he requested and obtained informed consent: "The experimental nature of the treatments was explained to the patient who...promptly consented." Her response to therapy of course was extremely gratifying. She died in 1919 of cardiac failure, having been euthyroid for 28 years, certainly a satisfactory period of post-marketing surveillance. Murray estimated that it required more than 870 sheep thyroid glands to maintain that condition through the years.¹¹

Gull is the only physician to gain eponymic celebrity for his work in hypothyroidism, whereas the lore of hyperthyroidism is overly populated with named signs, most for descriptions of eye changes observed by central European ophthalmologists and neurologists. William Ord who seems to have been the chairman of the investigating committee certainly qualifies for such a memorial. His clinical descriptions are as good, if not better, than Gull's. In addition he carried out in 1893 a remarkable study of the metabolic effects of glycerine extract of sheep thyroid demonstrating that urine volume increased, nitrogen excretion, mostly as urea, exceeded intake, body weight decreased rapidly, and body temperature rose.¹² We now know that these effects are related to the transformation and excretion of the myxedematous fluid, "mucin,"⁸ to increased glomerular filtration rate and increased body heat production. The brief report of Ord and White¹² deserves a more prominent place in the archives of thyroid disease than it now occupies.

Several generations of physicians have practiced since Gull and Ord and our approach to myxedema is now by way of the laboratory rather than the bedside, and thyroxine and tri-iodo-thyronine have replaced thyroid extract bringing greater precision and predictability to therapy. Those of us who remember when the basal metabolic rate was the major diagnostic criterion for hypothyroidism and when the thyroid surgeon was the king of his trade have been extremely

*Author's note: In 1958 because of the "real danger that we shall become completely cut off from our medical past and relapse into a sort of modern Dark Age," Arthur Bloomfield who had been Chairman of the Department of Medicine at Stanford published *A Bibliography of Internal Medicine. Communicable Diseases*¹ and followed it in two years with a similar volume covering *Selected Diseases*,² 21 in all. For the curious, these volumes will be richly rewarding. Major's anthology, *Classic Descriptions of Disease*,³ is also valuable. I have drawn on each in this account and have so indicated in the references.

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fortunate. However, progress has come at some cost. We no longer see patients with thyroid disease in hospitals and our medical students and house officers do not have the opportunity to learn the natural history of these processes at the bedside. Determination of serum thyroxine and other laboratory methods have become routine screening procedures so that unsuspected diagnoses are sometimes thrust upon us. Better, however, to have specific diagnostic procedures than not recognize a condition so easily treated.

The huge goiter of yesterday, due to iodine lack, is no longer with us, hyperthyroidism yields to radioactive iodine therapy and the thyroid surgeon is a legendary figure. We in this country now get enough iodine so that goiters are rare and the Lugol's solution used to prepare the toxic patient for surgery is an historic relic surviving in medical dictionaries.

The thyrotoxic patient of yesterday posed a considerably greater therapeutic challenge than the deficient individual. While there were occasional spontaneous remissions, most patients required definitive surgery. Here the problem was timing, how to "cool off" the patient and operate at the optimal time. The custom was to hospitalize, administer Lugol's solution (iodine and potassium iodide) to suppress the gland for ten to fourteen days, and to have a surgeon who had already established his reputation as "*the* thyroid surgeon" visit once or more daily. Shades were often kept drawn in the patient's room and phenobarbital and vitamins given liberally during the wait. Then the surgeon would say *choose the time* and, after quickly identifying the parathyroid glands and the recurrent laryngeal nerve, would rapidly mobilize the thyroid gland and remove a part or all of the organ. The good surgeon had few thyroid storms, attributable to massive outpouring of hormone from a manipulated gland. If he had many such catastrophes, he did not acquire the treasured reputation of "*the* thyroid surgeon," nor did he if he damaged too many recurrent laryngeal nerves. Stridor was a constant reminder to the community of his failure. Fortunately thyroid replacement was available, although the diagnosis of post-operative hypoparathyroidism was often missed.

The thyroid surgeon at my medical school was an excellent one, if considered somewhat eccentric by wise medical students. He was almost oppressively meticulous and did his thyroidectomies under local anesthesia so he could be more certain that he was sparing nerves. He kept up a constant chatter, directing operating room traffic, questioning the patient, correcting surgical house officers and thoroughly mystifying medical students. He wore a headlamp so that his operative field was better lighted and maintained marvelous hemostasis, describing suture material in agonizing detail as he worked. Once his lamp misbehaved shocking him enough to make him dance. Without missing a surgical move he piped, "Turn it off! Turn it off! I'm sterile." The condition was temporary and his surgery was completed without further distress to the surgeon or to the patient.

That an excellent thyroid surgeon resided in South Carolina was distressing to some of the state's boosters. A few years earlier studies had suggested that South Carolina's rivers were richer in iodine than any others in the United

States. This led to informing tourists and industrialists looking to build factories that South Carolina offered a remarkably healthy environment. A new radio station in the capital city, Columbia, was even given the call letters WIS, Wonderful Iodine State. Now we cut down the sympathetic overdrive in such patients with beta-adrenergic blocking drugs and administer radioactive iodine thereafter. Thyroid storm is exceedingly rare and iodine is only thought of for cuts, bruises and prepping.

North Carolina was a more fruitful state for those interested in thyroid disease than South Carolina. It is more mountainous in the west and goiter was common as it was in other mountainous areas. Photographs of mountain families often showed mother or grandmother or both to have huge goiters suggestive of the cask carried by the St. Bernard dog in the traditional winter rescue in the Alps.¹³

Myxedema received more attention in Winston-Salem as well. When I came to the North Carolina Baptist Hospital as a house officer in 1950, George Harrell was chairman of the Department of Medicine and he was intensely interested in myxedema which he thought much more common than had been appreciated. He had become fascinated with the condition when he was a house officer at Duke where he had graduated from medical school. In his first paper about the disease,¹⁴ he confirmed an unappreciated observation that the relaxation time of deep tendon reflexes was prolonged in hypothyroidism.¹⁵ This could be demonstrated kymographically and therapeutic progress followed by serial recordings. We were well drilled in this procedure as well as in the manifold and variegated manifestations of the disease, particularly the less common ones: fecal impaction, baldness in women, subtle vocal changes and what he called a slow, dry humor.^{16,17} Movies of myxedematous patients were taken before therapy and after euthyroidism was regained, and often shown to the patients and their families so that family members might suspect if patients had left off their "thyroid." Before he left Winston-Salem to establish a new medical school at the University of Florida, other members of Harrell's department also pursued investigations of hypothyroidism, Yount¹⁸ demonstrating that glomerular filtration rate and renal blood flow were diminished, and Aikawa¹⁹ examining alterations in serum electrolytes and exchangeable sodium and potassium content.

Harrell's most memorable diagnostic feat came when on a return visit to Winston-Salem he met a member of the faculty whom he had known for years. This physician had in the interim developed hypothyroidism, unappreciated by his fellow faculty. A phone call was sufficient, treatment was begun and euthyroidism restored. Harrell was also reputed to have diagnosed myxedema by telephone, recognizing characteristic vocal changes in a communicant long known to him. That such vocal changes can be easily missed because of their gradual development and should be listened to carefully was brought home to me by the case of a lady whom I knew when I was in high school. She had once sung in a church choir as a soprano, but as the years passed she gradually changed to a base before vocal fatigue forced her

retirement from group singing. With adequate therapy she returned to stand with the ladies—as an alto. The long delay in recognition of her condition proved Harrell's point. □

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William Harvey

G.S.T. Cavanagh

William Harvey used his dictionary and found that diastole is defined as a rhythmically recurrent expansion. The systemic arterial system is expanded by the systolic output of the left ventricle. Harvey writes of arterial diastole. What most of us call the systolic arterial expansion is correctly designated by Harvey as arterial diastole. The master is usually right!

William Harvey (1578-1657) is without much doubt the most outstanding English-speaking personage in the history of medicine. The little book in which he demonstrated the circulation of the blood, *De motu cordis*, Frankfurt 1628, is probably the most important text in all medical science, and his larger *De generatione*, London 1651, is a classic of embryology. Recognition in his lifetime took the form of appointment as physician to St. Bartholomew's Hospital, as medical attendant to three Stuart kings, as Lumleian Lecturer and later President of the College of Physicians, and as Warden of Merton College, Oxford.

Dr. Josiah Trent's fine collection of Harvey editions, which includes the near-fabulous first of *De motu cordis* and the two even rarer English editions published at Cambridge, has been one of the strong points of the Duke Medical Center Library. It was naturally a matter of some interest to the library when a previously unrecorded contemporary portrait of Harvey appeared on the market in California, but at a price far beyond the library's means. It was a pleasure to learn that the picture had been bought by a Durham man and former member of the Duke faculty, Verne Roberts, Ph.D., and a much greater pleasure when Dr. Roberts offered to lend his new acquisition to be hung on the walls of the History of Medicine Reading Room. Dr. Roberts is now a consulting bioengineer and his interest in Harvey lies partly in the fact that Harvey solved the problem of the circulation by biomechanical experiments. Harvey was also the author of a manuscript on the physiology of movement which was never


published until 1959. In a short space of time Dr. Roberts has formed a remarkable library of books in mechanics and biomechanics, many of which are also now on loan to the university and medical libraries at Duke.

Harvey's achievements were summed up by William Stirling in *Some Apostles of Physiology* (London 1902): he "demonstrated by the experimental method that the blood moves in a circle, that its movement is due to the action of the heart as a pump, that systole is an active contraction of the heart and diastole a passive act of dilatation. He gave a true theory of the pulse. For all time he set the method, that of experiment and induction, which has led to all modern progress in physiology."

As a leading physician and a personage at court, Harvey seems to have sat for his portrait several times and some of these depictions exist in more than one state, the artist having produced them on demand. Dr. Roberts's portrait closely resembles one given to the Royal Society by John Mapletoft, M.D., in 1683, but it is difficult to assign priority among the three Harvey portraits now known which fall into this "family." On the authority of the Keeper of the Queen's Pictures, they are thought to have been painted in Sir Peter Lely's studio during the 1650s. Harvey died in 1657 and the picture shows him as an elderly man wearing a black skull cap, as he might well have done in the chilly privacy of his own home. The Durham picture remained in private hands from the 17th century until 1986 when the Fitzwilliam Trust sent it to auction at Christie's (London).

A large postcard reproduction has been prepared (see cover) and is being sold for one dollar a copy in support of the History of Medicine Collection. Copies can be ordered by sending a check to Duke University Medical Center Library, Durham, NC 27710. □

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Heart Attack

BOUNCING BACK

William D. Snider

I hadn't meant to write about my coronary occlusion until somebody called my attention to a beguiling article in *The New York Times Magazine*, called "Balloon Man." The author, Dr. John Stone, a cardiologist at Emory University, writes of meeting the real life Balloon Man, the first person to work therapeutically within the coronary arteries. His name is Dr. Andreas R. Gruentzig, and he emigrated from Zurich to Atlanta in 1980. This world-class scientist gives full credit to those on whose shoulders he stands.

One was a 25-year-old German physician named Werner Forssmann who was convinced the heart could be entered safely with a small tube or catheter. Against orders of his superiors, he obtained a sterile needle and, using local anesthesia, made a small incision into one of the veins of his arm. Then he slid the catheter in 26 inches, far enough to reach the interior of his own heart. Forssmann reported no pain, only a feeling of warmth. In the company of a nurse, he walked down several flights of stairs to an x-ray room and substantiated that the catheter was indeed inside his heart.

Out of Forssmann's courageous experiment — he won the Nobel Prize in 1956 — sprang the wonderful, life-saving science of angioplasty. Angioplasty, in a few simple words, is inserting a small dilating catheter — a balloon no less — into the narrowed arteries of the heart to clear clogged and damaged vessels and return them to normal size and function.

What happened to me one mid-September morning last year began while I was brushing my teeth. I began feeling perspirey and faint. There was no pain to speak of, only a vague discomfort in my chest. But I knew something was wrong. My wife and I hopped in the car and were at our family physician's office in less than five minutes. He had an electrocardiogram done and ordered an ambulance immediately. I was in Greensboro's Moses Cone Hospital within another few minutes and moving immediately toward the "cath lab" where my cardiologist was ready for business.

I won't go into all the details — already I feel like Lyndon Johnson discussing his "operation." But I do want to mention the strange sensation I experienced, watching on live television a catheter move around inside my own heart. The doctors and nurses were all there watching on the monitor, and so was I. It seemed as if it were happening to someone else.

At one moment — when the catheter touched a clot in my right artery and it slowly fell apart — a vivid parallel flashed through my mind. It was like watching my 10-year-old grandson play video games on the TV screen. You know how the "good guys" and "bad guys" zap each other. Or perhaps it was like a roto-rooter. The monitor showed that the procedure (including drugs) had managed to clean out most of the blockage. The flow of blood seemed definitely stronger than before.

There were several other complications — which I won't discuss in detail, largely because I'm not that medically

Mr. Snider, retired Editor of the *Greensboro News & Record*, resides at 1405 Briarcliff Road, Greensboro, NC 27408.

knowledgeable. The catheter was used two additional times — once that afternoon and then again two days later. But after nine days in the hospital I was home, heavily medicated but becoming stronger every day and beginning a regimen of brisk walking and watching my diet.

It's no secret that a heart attack, if you survive it, changes your life. My family has a history of heart trouble, going all the way back to my great-grandmother; and, like my sister and father, I had been on high blood pressure medication since early youth. Fortunately, I married a splendid cook. She knows how to do all kinds of fascinating things with food and besides that knows that a good low-fat diet makes a difference. Beyond that, I have played either golf or tennis all my life. At the age of 68 last September, before my heart attack, I was playing doubles about three times a week, winter and summer, and thought I was in pretty good shape.

When I went back to my cardiologist about six weeks after my attack for a stress test, I discovered that I wasn't in such good shape after all — at least not after nine days in the hospital and a lot of bed rest. I finished only the second phase of the treadmill test. My doctor recommended that I join Greensboro's Cardiac Rehabilitation Program at the YMCA. It's a three-times-a-week, 7:30-in-the-morning session. It features an hour of physical conditioning: ten minutes of stretching and strength-building exercises, 40 minutes of walking/jogging and ending with 10 minutes of stretch-relaxation.

I had resisted getting involved, largely because I hated to rise before 7 in the morning. Sleeping late was one of the prerogatives of retirement. I was reluctant to change my routine; yet changing it became one of the best decisions of my life.

Some 80 cardiac patients, of all ages and varieties, I discovered, turn out for this program, on the recommendation of their physicians. It's a non-profit operation patterned after a similar one at Baptist Hospital in Winston-Salem. The Greensboro program is about to observe its 10th anniversary. A physician and nurse are always on hand. We meet in the second-floor gymnasium and use it for our exercise and walking sessions. Our physicians make all our medical records available to the GCRP staff. To begin with, the new fellows and girls on the block undergo an assessment of their medical, dietary, psychological and exercise status. Based on this assessment, they get recommendations for how strenuous their exercise programs should be, dietary directions and

suggestions about alleviating stress.

It's all sort of informal and sociable. Quickly you run into old friends and make new ones. It's especially good, when the weather is cold and blustery outside, to have a warm place for walking (not the shopping malls some cardiac patients use).

The dietician requests a detailed summary of meals eaten for seven days, then provides a splendid analysis of how you're doing in that area. Even though my wife and I thought we were adhering to fairly sound dietary practices, we learned quite a bit, especially about the hazards of packaged foods like cereals and soups. I had long ago given up milk as a regular beverage but learned that was a mistake. We're changing the kinds of crackers we buy as well. We're looking more closely at all the food labels.

Participants likewise get counseling from the regular staff psychologist who knows better than we that our lives have been changed and that we need

to see whether we can make those changes constructive.

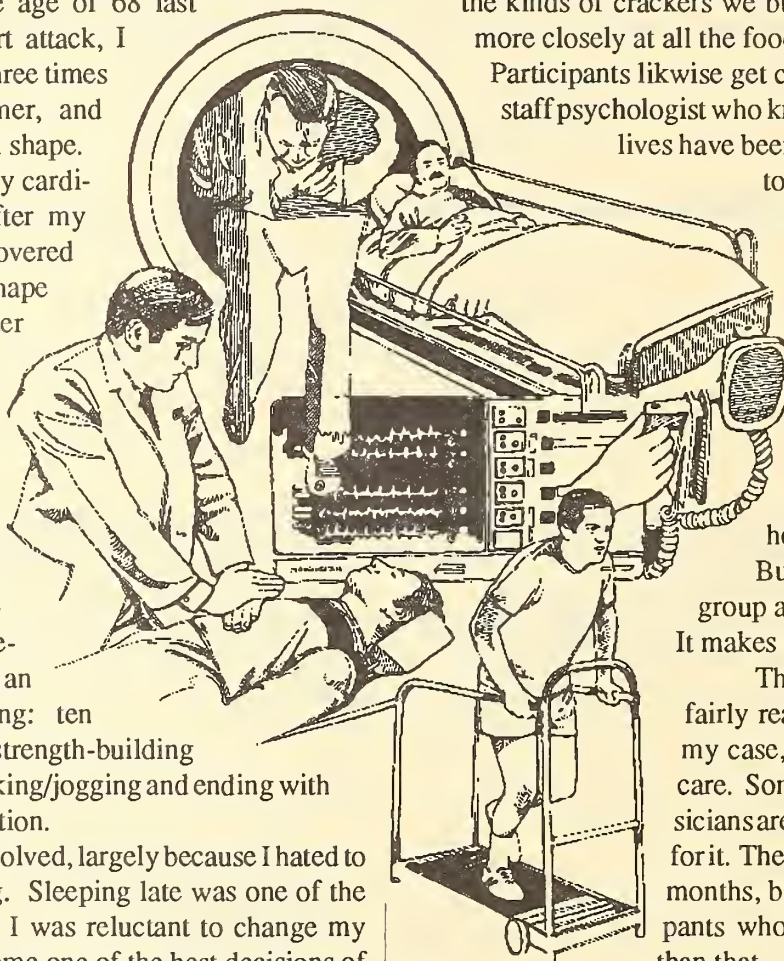
I immediately decided to keep up the exercises and walking on days when our classes don't meet. It's relatively easy to do the exercises at home and get out and walk around the neighborhood.

But you need the discipline of group activity three times a week. It makes you feel better all day.

The cost of the program is fairly reasonable and most of it, in my case, will be covered by Medicare. Some twenty Greensboro physicians are participating. I salute them for it. The duration is routinely twelve months, but I've already met participants who've been attending longer than that.

My purpose in writing about my heart attack was to praise the new medical technology at Moses Cone Hospital and the kindnesses of family and friends. In addition to the angioplasty, I also received the clot-dissolving drug TPA and a blood thinner, heparin. A surgical team was also standing by to take over if angioplasty and drugs didn't work. I'm thankful to have encountered so many dedicated physicians and nurses who helped me on my way back. There's a 20 to 25 percent change I'll have to go back for more medical work. I'm therefore glad to know that so many skilled professionals are on hand to give me the best break possible.

But I also want to endorse the rehabilitation program. If you need it, I hope you'll find a program similar to the one at the Greensboro YMCA.



Certified Cardiac Rehabilitation Programs in North Carolina

What follows is a list of the certified cardiac rehabilitation programs (CRPs) in North Carolina as of December 31, 1988. These programs have fulfilled the requirements established by law by the General Assembly in 1983 and the rigorous, specific policies and procedures adopted by the North Carolina Department of Human Resources. The Department's Division of Vocational Rehabilitation is the designated coordinating agency for out-of-hospital CRPs in the state.

In order to become certified, a CRP must apply; must meet specific criteria regarding the facility, its staffing, admission criteria and patient assessment; and must pass inspection by the Department of Human Resources. The program mentioned by William D. Snider in his article, "Bouncing Back," is among those on this list.

Albemarle Hospital
200 E. Ward Street
Elizabeth City 27909

Annie Penn Memorial Hospital CRP
618 South Main Street
Reidsville 27320

Bennett Cardiac Center
3626 Latrobe Drive
Charlotte 28211

Cape Fear Valley Medical Center CRP
2717 Fort Bragg Road - YMCA
Fayetteville 28303

Capital Cardiovascular Center
3301 Executive Drive
Raleigh 27609

Carolina Cardiopulmonary Rehabilitation
3330 Six Forks Road
Raleigh 27609

Central Carolina Hospital Cardiac Rehabilitation
1135 Carthage Street
Sanford 27330

Charlotte Institute for Health Promotion, Inc.
Cardiac Rehabilitation Program
P.O. Box 32861
Charlotte 28232

Craven Cardiac Rehabilitation Program
2000 Neuse Boulevard
P.O. Box 2157
New Bern 28561

DUPAC
Box 3022-107
Duke University Medical Center
Durham 27710

Durham Cardiovascular Health Center
700 Central Medical Park
2609 North Duke Street
Durham 27704

Franklin Cardiac Rehabilitation Program
471 East Main Street
Franklin 28734

Frye Regional Medical Center CRP
420 North Center Street
Hickory 28601

Gaston County Cardiac Rehabilitation Foundation
615 West Franklin Avenue
P.O. Box 1982
Gastonia 28053

Greensboro Cardiac Rehabilitation Program
1015 West Market Street
Greensboro 27401

Health Works Cardiac Rehabilitation Program
3000 New Bern Avenue
Raleigh 27610

Health-II Cardiac Rehabilitation Program
183 Marion City Square
Marion 28752

Heart Beat Cardiac Rehabilitation Program
P.O. Box 649
Siler City 27344

Heart Care Cardiac Rehabilitation Program
612 Mocksville Avenue
Salisbury 28144

Heart Path Cardiac Rehabilitation Program
509 Biltmore Avenue
Asheville 28801

HeartStrides Cardiac Rehabilitation Program
High Point Regional Hospital
P.O. Box HP-5
High Point 27260

Heart to Heart Cardiac Rehabilitation Program
P.O. Box 938
Valdese 28619

Heart Track Cardiac Rehabilitation Program
1206-B Vaughn Road
Burlington 27217

High Country Cardiac Rehabilitation
P.O. Box 128
Banner Elk 28604

Iredell Memorial Hospital Cardiac Rehabilitation Program
P.O. Box 1400
Statesville 28677

Lenoir Memorial Hospital Cardiac Rehabilitation Program
P.O. Drawer 1678
Kinston 28501

Mecklenburg Cardiovascular Consultants CRP
1431 Elizabeth Avenue
Charlotte 28204

Moore Regional Hospital Cardiac Rehabilitation Program
130 Turner Street
Southern Pines 28387

Moses H. Cone Hospital Cardiac Rehabilitation Program
1200 North Elm Street
Greensboro 27401-1020

Nash Day Hospital Cardiac Rehabilitation Outpatient
Program
Curtis Ellis Drive
Rocky Mount 27804

Oceanside Cardiac Rehabilitation Program
#2 Medical Park
Morehead City 28557

Orange Cardiovascular Foundation, Inc.
123 Fetzer Gym
University of North Carolina
Chapel Hill 27514

Park Ridge Preventive CRP
P.O. Box 1569
Fletcher 28732

Piedmont Cardiac Rehabilitation Program
1010 Mendenhall Road
Thomasville 27360

Pitt County Memorial Hospital Cardiac Rehabilitation
Program
ECU School of Medicine-Cardiology Section
Greenville 27858-4354

Rex Wellness Center
Cardiac and Pulmonary Rehabilitation Program
P.O. Box 52235
Raleigh 27612

Rex Hospital Cardiac Rehabilitation Program
Carolina Courts Sports Club
302-A Pebble Creek Drive
Cary 27511

Southeastern General Hospital Cardiac Rehabilitation
P.O. Box 1408
Lumberton 28359

Wake Forest Cardiac Rehabilitation Program
P.O. Box 7628 Reynolda Station
Winston-Salem 27109

Watauga Cardiac Wellness Program
Appalachian State University
HEPELS Department
Boone 28608

Wayne Memorial Hospital, Inc.
Cardiac Rehabilitation Program
2700 Wayne Memorial Drive
Goldsboro 27530

Western NC Regional Cardiac Rehabilitation
and Intervention Program
Reid Gym
Western Carolina University
Cullowhee 27823

Wilkes General Cardiac Rehabilitation Program
P.O. Box 609 N
North Wilkesboro 28659

Wilmington Cardiovascular Rehabilitation Foundation
2026 South 16th Street
Wilmington 28401

Wilson Cardiac Rehabilitation Program
P.O. Box 7375
Wilson 27893

YMCA Community Cardiac Rehabilitation
Hendersonville County Family YMCA
810 6th Avenue West
Hendersonville 28739-3599

Skin Self-Examination for Melanoma

A. Elise Weinrich, M.D.

Melanoma is the deadliest form of skin cancer, and it is on the increase. The incidence of melanoma has been estimated to have increased over 70% in the last several years.

There are many differing opinions as to why we are experiencing a melanoma epidemic. Theories include our sunbathing habits, increased sunspot activity, and depletion of the ozone layer. Whatever the different causes, there is agreement that there is a serious increase in the number of cases, both in the United States and worldwide.

The good news is that doctors and patients are detecting and diagnosing melanomas earlier, and this is the most important factor in treatment and cure. Melanoma is no longer the "death sentence" it once might have been. If it is removed early enough, cure rates can be greater than 95%.

Virtually everyone has several moles. They may be flat or elevated, dark or light, smooth or bumpy. People will grow new moles during their lifetimes, and old moles may slowly change. Unusual growth or change in any mole needs to be evaluated, particularly if the changes show certain features.

The ABCDs of Moles

These features may be remembered by learning "the ABCDs": Asymmetry, Border, Color, and Diameter (figure 1).

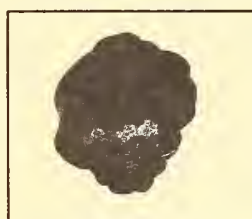
Asymmetry means that the mole is not symmetrical or balanced... a line drawn through the middle does not create matching halves. The Border of the mole should also be relatively even with no irregular notching of the edge. The Color of the mole should be relatively even and uniform, although many benign (non-cancerous) moles may have some color variation. Multiple shades of color, a blue-black color, or blue-red color (particularly when this is a new change) should be evaluated. Diameter is important also, although an early melanoma can be very small. Most melanomas are larger than 6 mm (1/4 inch), approximately the size of a pencil-tip eraser.

You can detect changes in the ABCDs of your moles by practicing self-examination (figure 2, next page).

The Danger Signs of Melanoma



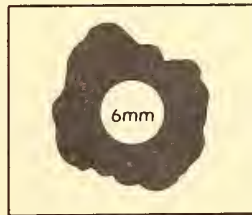
A Asymmetry — one half unlike the other half.



C Color varied from one area to another; shades of tan and brown; black; sometimes white, red or blue.



B Border irregular — scalloped or poorly circumscribed border.



D Diameter larger than 6mm as a rule (diameter of pencil eraser).

Figure 1. Characteristics of a Melanoma (Reproduced courtesy of the American Academy of Dermatology).

From Durham Dermatology Associates, Suite 505, 2609 N. Duke St., Durham 27704.

Self-Examination

Regular self-examination is important (figure 2). Look for changes. If you have a very large number of moles, consider taking a picture of your own torso every six to 12 months to help you follow any changes in your moles.

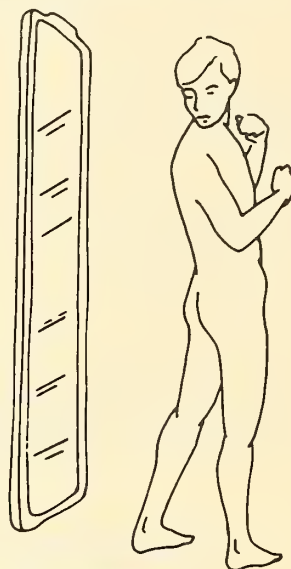
Learn your ABCDs, perform regular self-examinations, and check with your dermatologist if you have a suspicious mole or growth. □

The best time to do this simple monthly exam is after a bath or shower. Use a full-length and a hand mirror so you can check any moles, blemishes or birthmarks from the top of your head to your toes, noting anything new—a change in size, shape or color, or a sore that does not heal.

1. Examine your body front and back in the mirror, then right and left sides, arms raised.
2. Bend elbows and look carefully at forearms and upper under-arms *and* palms.



3. Sit, if that is more comfortable, to look at backs of the legs, feet—spaces between toes *and* soles.



4. Examine back of neck and scalp with the help of a hand mirror, part hair (or use blow dryer) to lift it and give you a close look.



If you do the exam regularly, you will know what is normal for you and can feel confident. Remember the ABCDs and check with your physician or clinic if you find something.

Figure 2. How to do a Skin Self-Examination
(Reproduced with permission of the American Cancer Society and courtesy of the American Academy of Dermatology).

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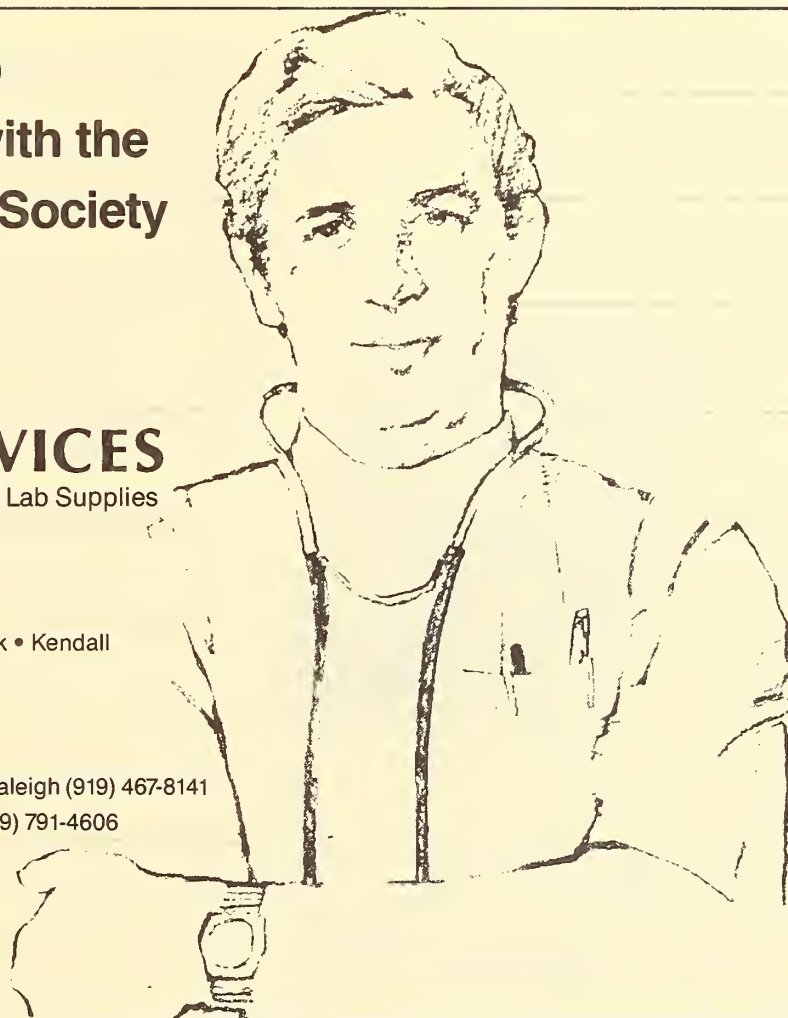
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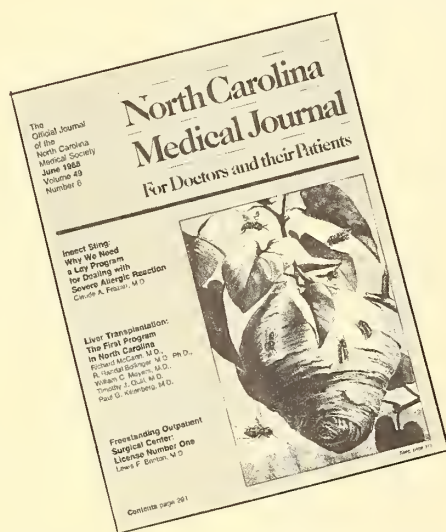
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Geriatric Education: The Duke Program

Erdman B. Palmore, Ph.D, and Harvey Jay Cohen, M.D.

There is a rapidly accelerating need for more geriatric care and education in the United States and especially in North Carolina. This need stems from three processes. The first process, the dramatic increase in numbers of older persons, is well known. It has been estimated that the number of persons over age 65 is increasing at a rate of about 150,000 *per month*.¹ Second, there is an even more rapid increase in the numbers of the "old-old"—those over age 75. This is the age group that requires more geriatric care than the "young-old." The "old-old" now constitute about 4.7% of the population, and by the end of this century they will constitute about 6.4% of the population.² Third, the development of more, and increasingly sophisticated, methods of treatment for geriatric patients requires ever-increasing skills for their implementation.

The net result of these three processes is a dramatic increase in the need for geriatric care.³ According to projections based on 1980 physician rates and population projection, the need for physicians for the elderly will increase 47% by the year 2000 and 115% by the year 2020.⁴ Similarly, the need for hospital services will increase about 40% by the turn of the century. Of course the projected nursing home demand will continue to grow rapidly.

The shortage of health professionals qualified to deliver efficient and effective geriatric care is even greater in North Carolina than in most of the nation for two reasons: we have a lower ratio of health professionals to population than the average for our nation; and there has been less geriatric education offered in this region than in many others. Duke University and its Center for the Study of Aging and Human Development and the Durham Veterans Administration Medical Center Geriatric Research Education and Clinical Center have pioneered in offering geriatric education, and this activity now needs to be greatly expanded to meet the current and future shortage of geriatric health professionals. In 1985, the University of North Carolina was awarded a

Geriatric Education Center Grant in recognition of the area's great need. This grant was for a multidisciplinary project involving the schools of nursing, pharmacy, social work, dentistry, and medicine. Through the Department of Medicine, the UNC-GEC offered six part-time geriatric fellowships annually which included a three week multidisciplinary summer institute with some clinical experience. In addition, several evening series of geriatric lectures were offered during the academic year.

Their grant ended in September, 1988. However, they will continue to offer some components of the project including some geriatric fellowships starting in July, 1989. At the time their grant ended, there were no other federally funded Geriatric Education Centers in North or South Carolina.

In October, the Duke Center for the Study of Aging and Human Development started a Geriatric Education Center with a grant from the U.S. Health Resources and Services Administration. The primary purpose of the Duke Geriatric Education Center (DGEC) is to provide clinically-based geriatric training to health care professionals. This training consists of 13 sets of clinical experiences which we call modules. The modules are organized around clinical sites or conferences of the Duke Center for the Study of Aging and its affiliates, including the Duke Geriatric Evaluation and Treatment Clinic, the VA Geriatric Outpatient Clinic, The VA Geriatric Evaluation and Care Unit, the Family Medicine Geriatric Evaluation Clinic, the Durham County General Hospital Geriatric Rounds, the Falls and Instability Clinic, The Alzheimer's Disease Research Center, the VA Gerofit Program, and several nursing homes.

Each module consists of four types of learning experiences: (1) a set of core readings sent to participants prior to their visit to Duke; (2) an orientation session held before their participation in the clinics or conferences; (3) active participation of trainees in the clinics or conferences; (4) follow-up discussion after the clinics or conferences.

The number of hours in the modules ranges from two to 20. Most modules are repeated on a weekly basis. Several may be taken simultaneously. Modules are offered in four areas: geriatric medicine, geriatric mental health, health promotion, and long-term care. In the area of geriatric

From Duke Geriatric Education Center, Box 3003 Duke University Medical Center, Durham 27710.

medicine there are three modules: Multidisciplinary Geriatric Assessment; Family Medicine and Geriatric Care; and Instability Evaluation and Management.

The "Multidisciplinary Geriatric Assessment" module, for example, is designed to develop the following competencies: comprehensive geriatric assessments using the biopsychosocial model; functioning in a geriatric team; development of a coordinated data base; development of a comprehensive treatment plan; management of common medical problems of aging such as failure to thrive, weight loss, incontinence, and memory disorders; social needs assessment; and utilization of available resources. These competencies are developed in 11 hours of participation in examinations and case management at the Duke Geriatric Evaluation and Treatment (GET) Clinic and the VA Geriatric Outpatient Clinic (GOC), with rounding and reviews of current patients at the GET and GOC clinics as well as at the VA Geriatric Evaluation and Care Unit.

Individual arrangements will be made for scheduling and sequences of modules. Health professionals may register for as many of these modules as they wish. Tuition is subsidized by the grant, but there is a registration fee of \$10 per module. CE, CME and CEU credit will be available for an additional fee. No previous training in geriatrics is required.

Other services provided by the Duke GEC include the following.

Speaker Bureau: a roster of geriatricians, medical sociologists, nurses, pharmacists, physical therapists, psychiatrists, psychologists, and social workers who can be contacted for speaking engagements on medical care of the elderly.

Education Consultation: our staff of geriatric educators are available for consultation about how to set up geriatric education programs or inservice training. Such consultation may be done in person, by mail, or by telephone.

Geriatric Education Newsletter: a quarterly newsletter is published by our GEC. This is available, at no cost, to interested health professionals.

Library: we are developing a library of both published and audio-visual materials in geriatric education. These will include audio cassettes, videotapes, and films.

For more information write: Duke Geriatric Education Center, Box 3003, Duke Medical Center, Durham 27710, or call 919/684-5149.

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Indication: Lower respiratory infections, including pneumonia, caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β -hemolytic streptococci).

Contraindication: Known allergy to cephalosporins.

Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in

moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.

- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] and toxic epidermal necrolysis or the above skin manifestations accompanied by arthritis/arthralgia, and frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonía, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%, and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinistest[®] tablets but not with Tes-Tape[®] (glucose enzymatic test strip, Lilly).

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Geriatric Education Programs in North Carolina

Response to the Demographic Imperative

William R. Hazzard, M.D.

The article in this issue of the journal by Palmore and Cohen (page 89) describes yet one more component in an aggressive response to the "graying of America" that is increasingly evident at all four medical schools in North Carolina. Duke has long been a leader, with their pioneering longitudinal study of aging and human development now in its second quarter-century. That historically important effort at Duke has devolved into a wide-ranging educational program for the many health professional disciplines appropriate to meeting the needs of an aging population. The Duke Geriatric Education Center will provide important clinical and didactic experience for a broad range of the region's health professional students at nominal cost.

Meanwhile the first such regional Geriatric Education Center in this area, at the University of North Carolina at Chapel Hill, continues to provide outreach and fellowship training for physicians in geriatric medicine as part of a multidisciplinary program on aging under the leadership of Dr. Mark Williams. At East Carolina, active programs in the Department of Family Medicine, including a fellowship program developed by Dr. Harold Kallman, and increased emphasis in the Department of Medicine under Dr. Eugene Firth, expose East Carolina students to up-to-the-moment precepts in the emerging discipline of geriatric medicine. A new emphasis upon gerontology and geriatric medicine at Bowman Gray rounds out this unique, state-wide network of programs in geriatric medicine. Important links are forged among all four programs through frequent informal gatherings at national meetings and, several times in recent years, through "Gerolina" club meetings on the Duke campus. I am aware of no other statewide response of the medical educational community to the demographic imperative of an aging population, especially one of such grass roots strength at all state medical schools both public and private.

Nowhere is this response more evident than at Wake Forest University Bowman Gray School of Medicine. On the Hawthorne Hill Campus in Winston-Salem, a wide-ranging program in gerontology and geriatric medicine has begun to develop under the umbrella organization named the J. Paul Sticht Center on Aging. Founded in 1987 upon receipt of a \$1.5 million grant from the RJR Nabisco Company, the Sticht Center provides leadership and coordination for the many elements appropriate to a comprehensive, institution-wide program on aging.

Of note, two new departmental chairmen at Bowman Gray, including myself, are gerontologists, a combination thus far unique in American Medicine: a geriatric internist, I was recruited from Johns Hopkins in 1986 to chair the Department of Internal Medicine, and Dr. Burton Reifler, a geropsychiatrist noted for his pioneering work in the diagnosis and management of Alzheimer's disease, was recruited from the University of Washington in 1987 to chair the Department of Psychiatry and Behavioral Medicine. Leaders of other programmatic elements have also been recruited to the activities of the Sticht Center; notably Dr. Philip Landfield, Associate Director for Basic Science Research, Dr. Maurice Mittelmark, Associate Director for Epidemiology and Prevention, and Dr. Walter H. Ettinger, Jr., Deputy Director and Chief of the Section of Internal Medicine and Gerontology in the Department of Internal Medicine.

Within the past 18 months, a geriatric fellowship training program has been initiated jointly sponsored by the Department of Internal Medicine and the Department of Family Medicine. Geriatric Assessment Clinics have been initiated within the Department of Internal Medicine/Family Medicine and the Department of Psychiatry and Behavioral Medicine, and the continuum of geriatric patient care has been developed, from in-patient consultation through long-term care (at the North Carolina Baptist Home for the Aging). A required 20-hour second-year course has been introduced into the medical student curriculum, and all residents in Internal Medicine and Family Medicine have a required,

From the Department of Internal Medicine, Bowman Gray School of Medicine, Winston-Salem 27103.

hands-on, in-depth experience practicing the continuum of geriatric health care.

A program of continuing medical education in gerontology and geriatric medicine has also been initiated in the northwest Piedmont region, with leadership from the Northwest AHEC. Gerontological research programs have been developed in neuroendocrinology, dementing illnesses and stroke, atherosclerosis, nutrition and cachexia, and the mechanism of the sex differential in longevity. The Winston-Salem community has become an important partner in this effort, including links with Forsyth Memorial Hospital and Senior Services, a community agency providing many direct services to the elderly of Winston-Salem. Finally, another

Geriatric Education Center may spring up in the northwest portion of the state as well, if a grant recently submitted from Bowman Gray is as successful as its predecessors from Duke and UNC.

Thus, North Carolina medicine is responding enthusiastically to its aging population. While perhaps belated, this response promises to be comprehensive and of high quality. As the American population ages progressively, more people are discovering the delights of North Carolina as a place for retirement. This represents a challenge to North Carolina medicine and an opportunity for us to be national leaders in this latest evidence that our profession cares deeply for the health and welfare of all Americans. □

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American Medical Student Association

A Success Story

P. Preston Reynolds, M.D., Ph. D.

American Medical Student Activism: 1964-1968, by Donald L. Madison, M.D., published recently in the NCMJ (1988;49:457-64), describes events which led to the formation of a national medical student organization, "The American Medical Student Association," dedicated to change in medical education and practice. This is an independent association. It is not a junior American Medical Association whose purpose is to indoctrinate students so that they will later become dues-paying members of the AMA. It has its own purposes and an agenda for achieving them. The editor has published these two papers in part to show the error of his ways. I did not believe an organization run and financed by students could achieve its stated objectives. The professional life of a student is four years. Could an organization with this level of turnover accomplish anything? My answer was a resounding No. I have had to eat my words. — EAS

The American Medical Student Association (AMSA), originally called the Student American Medical Association (SAMA), is the largest independent organization for physicians-in-training in the country with a membership of 30,000 medical students and residents. SAMA was created in 1950. The AMA assisted in the preparation of a constitution and supported the original convention. However, since students were not permitted to be members of the AMA, SAMA was established as an independent corporation with its own board of trustees and income.

In 1967-1968, there occurred within SAMA a dramatic shift in philosophy. Leaders of the "new SAMA" were activists who pursued the goals of improved access to health care and reform in medical education. Over the next 20 years,

the leadership created a sophisticated organizational structure, established a secure financial base, and further developed the philosophical foundation that has enabled the organization to provide an important contribution to the medical education community and the health policy debate. In addition, the organization's name was changed to the American Medical Student Association (AMSA).

As stated in the Constitution of the American Medical Student Association, the objectives of the Association are:

To be committed to the improvement of health care and health care delivery to all people; to promote the active improvement of medical education; to involve its members in the social, moral, ethical obligations of the profession of medicine; to contribute to the welfare of medical students, interns, residents, and post-M.D./D.O. trainees; to advance the profession of medicine.¹

AMSA's leadership and membership achieve these goals through the Association's House of Delegates, preceptorship

Dr. Reynolds has served as local AMSA chapter president (2 years), regional and national coordinator of the Standing Committee on Medical Education (3 years), vice-president (1 year), president (1 year), and member of the AMSA Foundation Board of Directors (2 years). She currently serves on the Board of Trustees as Immediate Past President.

programs, task force projects and newsletters, educational conferences, local chapter activities, and membership services.

Beyond AMSA's role in achieving educational reform and improved access to health care, the organization has become a leadership training school. Membership in AMSA is voluntary. All AMSA officers are medical students. The president is required by the by-laws to work full-time during the term of office publicly representing the Association, directing some of its activities, and contributing to formulation of its policies.

With this overall picture of the American Medical Student Association, this article will focus on the major events from 1968 to 1988 that highlight the establishment of a professional activist medical student organization.

The "New SAMA": Community Service And Educational Reform

Through most of the 1950s and 1960s, similar to other student and professional organizations, SAMA functioned like a medical fraternity. It offered its members a monthly journal, *The New Physician*, insurance programs, social activities and awards for contests in medical research, medical writing and medical art. As a "junior AMA," SAMA held an annual convention where a national house of delegates established policy for the organization. As Donald Madison described, SAMA functioned as a training ground on citizenship in the AMA.² The membership did not engage in debates over controversial issues in medical education or health care delivery. The goal was conformity.

Most members looked to SAMA for life insurance. Soon after SAMA's formation, the Minnesota Mutual Life Insurance Company proposed offering a group insurance program for SAMA members. The policy holder received a greater base value for his life insurance policy if he assigned his dividends to SAMA. The dividends were maintained by the company and each year SAMA received a portion of this reserve. As the program expanded, SAMA acquired the image of being a "glorified life insurance program," not an active medical student organization.³

In the mid-1960s the wave of civil rights activism reached medical schools and culminated in the creation of the Student Health Organization (SHO). This was a time of student unrest. Some medical school and public health school faculty wanted to create a classroom in the community, and some students wanted more than lectures. From 1964 to 1966, the Office of Economic Opportunity awarded grants to medical schools, such as the University of Chicago, UCLA, Harvard, and Montifiore, to carry out faculty sponsored and faculty supervised interdisciplinary community health projects. Students from around the country spent their summer vacations as active participants in community health activities in Boston, Chicago, Detroit, Los Angeles, and New York.

For some students, this was their first exposure to the

social and economic conditions that contributed to ill health. Those early student activists returned to their universities and founded chapters of SHO. Beginning in 1966, students broke loose of the faculty and organized their own community health projects. Within two years, the number of student initiated programs reached into the hundreds. From "store-front" to rural clinics, the goal was to provide medical services to populations that had no other way of obtaining health care.⁴

Many students in SHO were unwilling to develop the national organizational structure necessary to maintain continuity and effectiveness. Several SHO members, however, believed it was important to work within a national organization to achieve the goals of improved access to health care and educational reform. David Kindig, an SHO member, was also a regional vice-president of SAMA. In 1966, he suggested to the SAMA leadership that they send a representative to the 1967 SHO national assembly. The SAMA national president, vice-president and executive director opposed the idea, but the majority of regional vice-presidents supported Kindig. Kindig knew the resistance to change in SAMA was great, but he had decided that if the leadership was willing to send him, he would run for president of SAMA in the Spring of 1967; if not, he would concentrate his activities with SHO.^{4,5}

Independent of this movement, some SAMA members were no longer willing to tolerate the illusion of purpose which SAMA espoused. At the 1967 SAMA national convention, Peter Wright, the delegate from Stanford medical school, presented a formal motion for withdrawal of the Stanford chapter from the organization.⁶ SAMA was an organization in need of a new vision.

Other SAMA members supported the Stanford chapter. Medical students at the University of Minnesota, Albert Einstein, and the University of Southern California had considered withdrawing. According to one delegate, "a lot of people in this country who are in SAMA feel that SAMA has nothing to offer them."^{6,7} His classmate Thomas Brod further challenged the SAMA leadership:

I would like to believe in SAMA.... But I keep asking myself whether SAMA has any real reason for existing. I wonder if SAMA is, in a sense, a sociological dinosaur stumbling to extinction over its own organization.... I thought it could be a great organization. Now I think it is a sham on one level, maybe even a fraud on another level. SAMA is a sham because, despite all the effort, thought and energy put out in various committees and on the floor [House of Delegates], little of SAMA's work becomes fruitful.

This is what SAMA should do. SAMA should involve itself in community health projects. SAMA should be a clearing house for summer employment opportunities throughout the world. SAMA should be an effective pressure group expressing the needs and opinions of American medical students. SAMA should be working to improve salaries and working

conditions for interns and residents. SAMA should be facing the important social issues of our time, such as the participation in the poor and poverty programs, generic prescribing, chemical biological warfare, and on and on.

In all seriousness, it seems that in an effort to be representative and safe, SAMA delegates have abdicated their responsibility to be leaders of American medical students.⁶

The future of SAMA was changed. Kindig, the first "activist" SAMA national president, was elected in 1967. Kindig bridged the SHO/SAMA transition. His local SAMA chapter at the University of Chicago had hosted the national SHO convention two years earlier. Kindig knew the leadership of both organizations and he knew that SAMA needed a "thorough face-lifting." His strength rested in an ability to smoothly introduce innovation into an existing organization. With the help of other medical students in SAMA, Kindig set out to change the direction of the organization.^{4,5,7,8}

The question of how to create a sustainable, financially viable professional activist student organization remained unanswered. However, Kindig moved quickly to solidify this new direction. With approval of the executive committee, he appointed the first community health committee in June of 1967 and later designated Ed Martin as chair of that group.

Ed Martin was SAMA chapter president at the University of Kansas. He also was a director of SHO. Martin was active in the black community in Kansas City and instrumental in controlling racial tensions between blacks and whites the night Martin Luther King was shot. Based on their community and SHO experiences, Martin and Kindig in 1967 presented to the AMA Board of Trustees a proposal for a student-based community health project in Kansas City. The AMA had no history of funding community health projects, but Kindig and Martin succeeded in obtaining the necessary support. SAMA's first community health project started as a local initiative in Kansas City under Martin's direction.^{5,9}

In the summer of 1967, three medical students active in both SAMA and SHO met at the SAMA sponsored chapter presidents national training meeting. Clement Lucas was a SAMA regional vice president, Chris Ramsey a SAMA chapter president, and Ed Martin a SAMA chapter president and member of the Standing Committee on Community Health. Through Martin's position on the Standing Committee on Community Health, these three students with the help of Kindig surveyed the SAMA membership for interest in community health activities. Beyond garnering support for increased activism in SAMA, Lucas, Ramsey and Martin wanted to be elected as a slate of national officers in the spring of 1968.⁹

Campaigning on a platform of commitment to social action and program development, the three national officers elected in 1968—Lucas, president, Ramsey, vice president, and Martin, treasurer—immediately expanded SAMA's

activities. These officers developed SAMA's first national community health and medical education programs. Efforts were started to establish preceptorships. A student editor was chosen for *The New Physician* and the membership solicited for areas of interest.^{4,7,10}

Many of the 46 resolutions passed by the House of Delegates in 1968 were politically and economically significant for the future of SAMA.¹¹ The resolutions addressed controversial issues. The topics ranged from expanding the number of training programs for medical students, physician assistants, and family physicians to evaluating internships, drug prices, and organ transplantation. The Delegates created a new standing committee on community health, an ad hoc committee on student welfare, and a grant committee. They voted that the chief editor of *The New Physician* would be a student and that the journal should contain articles on health legislation and medico-legal topics written by students and experts. Philosophical freedom was crucial; thus, the Delegates voted:

Whereas, The last year has proven to be a year of growing reorientations for the SAMA; and

Whereas, A marked liberalization of ideas and philosophies has arisen in the general attitudes of many members of this organization; and be it therefore Resolved, That SAMA encourages the filing of minority reports by committees and individual members; and be it further

Resolved, That the minority reports be made a part of the proceedings with which they are concerned.¹²

The executive director of SAMA resigned in the Fall of 1968. Charles Hewitt, a young lawyer from the American Academy of Family Physicians, was hired with the understanding that he would develop student health projects.¹⁰ Community outreach, preceptor programs, educational reform, and a more responsive legislative program emerged as the centerpiece of the organization's activist agenda.

Through the initiative of two students, SAMA formed in the fall of 1968 the SAMA Joint Commission on Medical Education to review the current status of medical education and to make recommendations as to how it could be improved. The Commission was composed of students and medical school faculty with an advisory board of leaders in medical education. SAMA secured grant support from the Eli Lilly Company Foundation, The Weir Foundation, and the Health Services and Mental Health Administration. To begin, each student commission member was asked to prepare a research paper on one of the most pressing issues in medical education.

Through critique of papers and lengthy discussions, the Commission developed a set of recommendations on every aspect of medical education from admissions to curricula evaluation. These recommendations were published in the form of a report, titled *A Handbook for Change*. Capturing the tenor of change, the Commission concluded that physicians needed to be trained differently so as to more appropri-

ately meet the public's health needs, not those of the medical school faculty. To assist medical students in achieving educational reform, *A Handbook for Change* included a chapter on strategies for organizational change and a sample curricular format.¹³

Concurrent with formation of the Joint Commission on Medical Education, SAMA convened the first national student conference on medical education in February, 1969. The goal of the Conference was to evaluate medical school curricula. SAMA organized the conference with some of the SHO leadership and obtained co-sponsorship with the AMA and the AAMC, the American Association of Medical Colleges. Over 200 students from 84 medical schools participated along with interns, residents, medical school administrators and faculty.¹⁴

The two-day conference combined small group workshops with plenary sessions on curriculum change. The participants described various medical school curricula and optimal learning environments. They concluded that medical schools failed to achieve a fundamental goal of education—integration of clinical and basic science medicine. Strategies for curriculum reform then became the focus of discussion.¹⁴

This national conference combined with the SAMA Commission on Medical Education fueled SAMA's commitment to educational reform. In the summer of 1969, SAMA sponsored a job-education project in cooperation with the Illinois State Medical Society, the Illinois Academy of General Practice, and the Illinois Hospital Association. This project, called Medical Education and Community Orientation (MECO), was designed to introduce pre-clinical medical students to health care in a hospital or group practice setting and to the role of the hospital in a community health care system. Students rotated through all areas of a hospital or clinic, observed and participated in physicians' offices, and studied various health-related agencies and institutions in the community.^{10,15}

The program showed that pre-clinical students rapidly assimilated clinical information and could contribute to discussions about patient care, that community physicians were effective teachers, and that community hospitals could provide a meaningful educational setting. On the basis of the project's success, SAMA sought and received a grant from the Sears Roebuck Foundation to expand MECO nationwide. MECO continued in various states for nearly 20 years.¹⁵

The activist SAMA emphasized a community orientation to both medical education and health care delivery as a means to achieve better health care for Americans. Future SAMA programs would reflect this bias. Ed Martin was elected president in 1969. With the help of Dr. Amos Johnson, Martin established the Appalachian Student Health Project with some money granted by the Appalachian Regional Commission, a federal agency created by Congress under the Johnson administration. SAMA's first national community health program was born in response to available funding and the membership's interest in community health.¹⁶

SAMA had as an advisor Dr. Johnson, who encouraged SAMA to move away from its primary role as an insurance broker to become an organization that provided opportunities for obtaining primary-care experience in the community. Johnson was past president of the American Academy of Family Physicians. He had lobbied for expansion of family practice residencies and community oriented health care and thus, he knew the leadership on Capitol Hill. Johnson informed SAMA's national officers of the possible funding through the Appalachian Regional Commission and introduced them to the appropriate people.¹⁷

The Appalachia Student Health Project was designed to recruit health professionals into community health, especially Appalachia, through exposing students to the health needs of that area. Interdisciplinary teams of health students were sent into Appalachia to conduct community projects. During the first summer of the program in 1969, SAMA placed 98 medical students and 20 nursing students in the eight-state Appalachian area to conduct health projects. Some communities continued these projects after the students left, and a significant number of participants later returned as physicians.¹⁶

SAMA initiated other programs to meet medical students' desire for community service experience. In one program health science students worked in Job Corps camps, and in other programs they worked on an American Indian reservation and in migrant communities.^{10,16,18} The organization carried out the National Health Service Corps Preceptorship Program, a program in which NHSC scholarship recipients were matched with practicing NHSC physicians in underserved communities. SAMA later started a Community Technical Assistance Program and the National Health Service Corps Advocacy and Recruitment Project. The overall goal was to encourage future physicians to consider practicing medicine among underserved populations.¹⁸

The new activist SAMA was able to sustain itself financially because it capitalized on the nationwide debate on how to solve the country's health manpower needs. SAMA offered potential funders the opportunity to influence students' career choices early in their medical training through exposure to community medicine. Numerous foundations and federal agencies accepted the argument and approved SAMA's grants. The most notable sources of funding were the Public Health Service and the Robert Wood Johnson Foundation.^{10,19}

SAMA reactivated its own foundation in 1973 under revised tax laws to act as the recipient for grant dollars.¹⁰ The Board of Directors would include both students and former SAMA leaders to provide some organizational continuity. Paul Wright, previous director of SAMA's Division of Health Manpower, was named executive director of the Foundation in 1974. Under Wright's direction, the Foundation grew rapidly—with monies from the federal government and private foundations.

More money meant organizational survival as well as more programs in community health and educational reform. SAMA operated a professional development center in New

Mexico and an educational research center linked to the Myers-Briggs center in Florida. SAMA was advocating the use of non-cognitive factors in medical school admissions. Supported by research data, SAMA's challenge for innovation became more credible to medical educators.²⁰

Change continued to propel the organization forward. In 1974 Charles Hewitt resigned as executive director of SAMA. Under his direction, the organization with its Foundation had grown from a budget of \$450,000 and a staff of seven to annual expenditures of \$3 million and a staff of forty.²¹

With increased autonomy through sizable grants and increased visibility through national projects, many students wanted a name that reflected SAMA's leadership of American medical students. In addition, the membership of SAMA was declining. SAMA's leadership thought the declining membership resulted from the perception that SAMA was affiliated with the conservative AMA.²² To eliminate the confusion and thereby increase membership, the SAMA House of Delegates voted in March, 1975, to change the organization's name to the American Medical Student Association (AMSA).²³

Relocation: A Financial and Legislative Agenda

SAMA started in a four-room house on Flossmoor Road in Flossmoor, Illinois, with a staff of five people. By the mid-1970s, SAMA's and then AMSA's income was heavily dependent on dividends from the Minnesota Mutual Life Insurance Company as well as federal and foundation grants. After eight years of debate, the Board of Trustees voted in 1977 to move the AMSA national office from Illinois to the Washington, D.C. area to be closer to the organization's sources of funding and to be more active in the health policy debate. In addition, there was hope that AMSA could attract young professional people, particularly those who were unwilling to move to Chicago.^{24,25}

The organization also underwent an internal reorganization in 1977 with the combining of both the AMSA Association and Foundation under the direction of one individual, Paul Wright. The reorganization provided Wright the opportunity to streamline the staff. This and the move to Washington trimmed the national office staff from 40 to five people. AMSA was starting over in northern Virginia.^{20,25}

The move to Washington tested the organization's strength. AMSA survived on a skeleton staff. Wright cut expenses at every opportunity. The president assisted in finding additional income for *The New Physician* from pharmaceutical companies, secured forgiveness of a \$41,000 loan from the AMA, and reached out to the membership by visiting 55 medical school chapters throughout the country.²⁵

Despite the seemingly overwhelming hurdles created by the move, there was new excitement in the opportunity for AMSA to participate actively in the legislative debate. In 1969 two medical students organized a nationwide letter writing campaign in support of Health Professional Student

loans—1,500 letters from medical students throughout the country landed on Congressmen's and Senators' desks. The organization helped shape the original Family Practice Act of 1970 and the bill establishing the National Health Service Corps. It later supported proposals to establish Health Maintenance Organizations and extend the National Health Service Corps. The AMSA president testified in favor of decreased capitation to medical schools in exchange for increased scholarship money with the requirement for compulsory service in underserved areas. Shortly after the move to Washington, the AMSA leadership wrote, introduced and secured support for passage of a bill extending for two years the tax exempt status on National Health Service Corps and military scholarships for medical students.²⁴⁻²⁷

To expand AMSA's health policy activities, the House of Delegates voted in 1985 to create a full-time student legislative affairs director position. This medical student must take a year's leave of absence from medical school to work in the national office. The legislative affairs director has written testimony, coordinated nationwide letter-writing campaigns on issues such as federal support for loans for disadvantaged medical students and regularly published a health policy update covering issues of interest to medical students.²⁸

In 1987 alone, the president on behalf of the organization testified before Congressional and federal committees on the creation of an International Health Service Corps and the financing of Undergraduate and Graduate Medical Education and submitted testimony on the nomination of Judge Bork to the Supreme Court and on re-authorization of Title VII of the Public Health Service Act. AMSA presented testimony on Regulations to Limit Medical Student Clinical Activities in New York State, and on Resident Work Hours in both New York and California. In addition, efforts were directed toward establishing a health policy externship program for medical students in Washington.²⁹

As part of the organization's legislative activities, every other year the AMSA convention is held in Washington to provide medical students the opportunity to visit their legislative representatives. The AMSA legislative affairs director has scheduled the appointments and prepared briefing papers on selected issues. Together, in 1985 and 1987, over 1,000 medical students went to Capitol Hill and discussed with their Congressmen and Senators funding for community health centers, home health care, graduate medical education, anti-smoking legislation, tax deductibility of student loans, the importance of health and social welfare programs to our national security, ratification of the INF treaty as a first step to de-escalating defense spending, and U.S. payment to the World Health Organization.³⁰

Financial Innovation to Meet the Activist Agenda

The solvency of the new activist SAMA and later AMSA rested on outside funders, including income from the Minne-

sota Mutual Life Insurance program.⁶ Money flowed from private foundations and federal agencies through the AMSA Foundation. This income often covered part of the organization's operating expenses in addition to the program costs. However, federal and foundation grant money for health manpower programs dried up in the early 1980s. When that occurred, many people wondered if AMSA would survive.

Commencing in 1978, AMSA expanded its individual membership service programs to generate a source of unrestricted income for the Association.^{25,31} AMSA created exclusively for its members competitively priced quality health, disability, life, and auto insurance programs. The AMSA Mastercard program allowed medical students with no established credit history to obtain a credit card, and an opportunity for residents to apply for an AMSA Goldcard. AMSA established a competitive loan program with a revolving line of credit for post-graduate physicians entering practice, and the lowest interest Health Education Assistance Loan program in the country (the AMSA HEAL Deal). All these programs provide a percentage of income to AMSA which thus reduces reliance on grants to finance the association's activities.

Membership dues never covered the cost of membership services. In 1976, the one-time membership fee of \$5 was increased to \$15.³² Eleven years later, students joined AMSA for \$40 for five years, which covered less than one half the cost of providing each member the AMSA publications and other benefits. AMSA membership was designed to be affordable to medical students.

For survival, AMSA became less dependent on outside grants, but to further its mission, AMSA submitted grants for innovative educational initiatives. In 1985, the Public Health Service awarded the AMSA Foundation grant support to develop and manage the AMSA Health Promotion/Disease Prevention Project, which has placed over 400 pre-clinical medical students in community and migrant health centers for preceptorship experiences. AMSA has provided these students with technical assistance to conduct health promotion education projects for the patient population served at the health center. In addition, the program's director developed a longitudinal tracking system to determine the effect of this program on a student's career choice.¹⁸

Through grant support from the J. M. Foundation, AMSA developed a chemical dependency program. To meet the educational needs of medical students in this area, AMSA conducted seminars for medical students and prepared resource manuals which identified clinical clerkships in chemical dependency. AMSA also helped students establish chemical dependency counseling programs in their medical schools.²⁸

Combining community service and educational innovation, AMSA developed the International Health Fellowship Program in 1987 with grant support from U.S.A. for Africa and the Pew Memorial Trust.³³ This program will place 28 students in African countries for eight months, provide educational seminars and guidance on a research project while in the host country. In the tradition of leadership

training, all AMSA Foundation program participants are selected from a national applicant pool, thus ensuring participation by students most interested and most qualified to receive the financial awards.

A Leadership Training School: Structure and Opportunities

AMSA's organizational structure originated in the AMA. The organization's policy making body has continued to be the House of Delegates. Delegates are sent from each of AMSA's 140 medical and osteopathic school chapters. At the Annual convention, this body determines the organization's positions on controversial issues, often after long debate.¹

The national leadership structure has consisted of the president, vice-president, treasurer, and trustees from AMSA's ten regions since 1950. A two-year trustee-at-large position was created in 1974 to increase continuity on the Board of Trustees.^{34,35} Despite earlier attempts, establishment of a full-time president did not occur until 1977 (Doug Outcalt was the first, 1977-78). Each medical student elected as AMSA president must withdraw from medical school, or delay residency training, for a year. The president and the executive director oversee and direct the operations of the Association and thus, the AMSA presidency itself is experiential education on financial management, program development, and organizational long-range planning. Additionally, the president is responsible for publicly representing AMSA and communicating with the national officers and local chapters. She or he receives an income commensurate with the salary of a medical intern in the Washington, D.C. area, or about \$24,000.¹

During the past ten years, the Board of Trustees approved several initiatives to assist the local chapters. The intent was to encourage activism in a climate of increasing conservatism and apathy. Since 1978, the local chapter project grant program has provided funds to local chapters to implement innovative ideas in medical education and community service.²⁵ In 1984 AMSA reestablished the Chapter Officers Conference where chapter presidents receive leadership training. In 1987 the Board of Trustees developed a comprehensive membership recruitment program which outlined responsibilities for all levels of the leadership and staff—local, regional and national.³⁶

That same year, leaders from all levels of AMSA conducted an intensive analysis of the structure of the association to determine the best way to meet the needs of the local chapters for more direct communication, continuity in the organization, and accountability of the elected officers.³⁷ In response, the House of Delegates approved establishing a president-elect position and an evaluation committee. Creation of a membership and marketing director position, a computer bulletin board system and a public relations department reflected the leadership's desire to strengthen AMSA's

internal and external communication network.²⁹

Since the late 1970s, the AMSA Task Forces and Standing Committees have served as a focus for activism and creativity. They evolved out of a need for substantive material on subjects not taught in medical school.³³ They have provided medical students the opportunity to pursue their specific interests through projects and educational programs. All task force and standing committee national coordinators are medical students. These students, with the help of AMSA staff and other medical students throughout the country, organize national projects, arrange for speakers at regional and national meetings, and write quarterly newsletters.

The AIDS and Pre-medical Education Task Forces were created by the 1987 House of Delegates.³⁸ Other Task Forces and Standing Committees include: Aging, Bioethics, Child and Adolescent Health, Community Health, Computers in Medicine, Death and Dying, Humanistic Medicine, International Health, Legislative Health, Legislative Affairs, Lesbian, Gay and Bisexual People in Medicine, Medical Education, Minority Affairs, Nutrition and Preventive Medicine, Occupational and Environmental Health, Prevention of Nuclear War, and Women in Medicine.

Two AMSA members recently received the Department of Health and Human Services Secretary's Award for Innovation in Health Promotion and Disease Prevention.³⁹ Their project, entitled Students Teaching AIDS to Students, or STATS, provides medical students with the training, curriculum and materials to educate adolescents on the prevention of AIDS. Typical of AMSA task forces, the AIDS task force will coordinate local chapter programs and assist medical students in their efforts to teach junior high and high school students about AIDS.

Creativity, innovation, community service, and experiential education continue to be hallmarks of AMSA programs. Of note is the fact that all of AMSA's programs, including the membership services, were created by or in response to the ideas of medical students.

Regional and National Conventions: A Time to Renew Activism

AMSA members retain their activism and commitment to serve the community through task force and standing committee projects, local chapter activities, and foundation programs. But the AMSA network comes alive at the AMSA regional workshops and during the annual convention. Each region hosts a three-day conference in the Fall where students attend educational programs on various aspects of medicine generally not included in the curriculum.

Every year the president and national coordinators of the task forces and standing committees arrange for the programming at the AMSA annual convention. The annual convention, similar to those of other professional societies, offers educational programs, House of Delegates activities and organizational time for regions and the different committees.

The most recent annual convention, "Health and Peace in the Year 2000: Empowering a New Generation of International Health Leaders," drew over 1,400 medical students from schools throughout the United States and four foreign countries, making this the largest medical student conference in the world. Carl Sagan opened the convention with the keynote address. He was followed by speakers who covered topics ranging from psychoimmunology and euthanasia to comparative health systems, aging in the international community and health care for refugees.^{30,40}

The annual convention is both the culmination of work during the term of one president and a beginning, with the election of new regional and national officers. The continuity of the organization rests in the collective memory of the leadership, the many years of service by the national office staff, and Paul Wright, AMSA's executive director.

Wright sees AMSA as a "place of ideas, of motivation"²⁰ that consistently has been five to ten years ahead of the times. When asked to name some of the best moves AMSA has made, he responds, the "number one decision was breaking off from the AMA.... Sticking to AMSA's mission of improving medical education, making a more socially conscious and responsible physician and getting health care to people who need it over all these years has made the difference."²⁰ So why has AMSA survived over the past 20 years? According to Wright, "When people are creative and flexible, you make anything work. That's the beauty of AMSA."²⁰

With ownership of its own national headquarters in Reston, Virginia, AMSA has entered a new phase—a professional medical student organization still committed to serving the public's best interest. SAMA, now AMSA, provides

The American Medical Student Association's Working Principles

- AMSA will provide an environment that supports the creative ideas of physicians-in-training
- AMSA will function as an integral member of the medical community and its organizations
- AMSA will serve as a forum for discussion of health issues and develop a policy agenda for physicians-in-training
- AMSA will effect change to make the medical education process more responsive to the needs of students and society
- AMSA will maintain its status as an independent organization
- AMSA will maintain its identity as primarily a medical student organization
- AMSA will assume a stronger role in shaping health care delivery
- AMSA will be financially independent and maintain a stable financial base
- AMSA will continue to develop health care leadership
- AMSA will develop and provide membership services to the physician-in-training community

medical students exposure to community health needs, experiences in leadership, and opportunities to explore creative ideas and social issues in medicine. Through these experiences, the values and attitudes of future physicians are shaped in ways that fundamentally better health care in this country. In that reality lies the reason why AMSA has survived to continue its activist agenda. □

Acknowledgment

I am grateful for the editorial help of Renie Shapiro and James F. Gifford, and for the framing of issues that occurred in discussions with Helen Burstin. The comments of David Kindig and Ed Martin were invaluable in understanding the early years of SAMA and in describing this period accurately.

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Unna's Boot

The paste or jelly boot, best known as the Unna boot, has stood the test of time for the treatment of venous stasis dermatitis and venous stasis ulcerations. The dressing is typically applied to the lower leg from just proximal to the toes up to the greater tibial tuberosity and then covered with a flexible wrap to give it additional support.



Paul Gerson Unna was born in Hamburg on September 8, 1850, the son of a physician. While most physicians are familiar with the Unna boot, few recognize the other numerous contributions made by this brilliant German dermatologist. He decided early on a medical career but, in the summer of 1870, he interrupted his medical studies to volunteer for duty in the Franco-Prussian War. He subsequently nearly died of hemorrhage from a severe thigh wound—for which he later received from the government a pension which he donated as awards for dermatologic achievements.

During medical school Unna had already shown an interest in dermatology, the subject of his Doctor's dissertation being on the embryology of the skin. Upon completion of his medical studies in 1875, he joined his father in a general medical practice. The lure of dermatology was too great, however, and he went to Vienna for five years of study under three masters of dermatology: Hebra, Kaposi, and Auspitz. In 1881, he returned to Germany where he started a dermatology clinic in a Hamburg suburb. His students recorded Unna's remarkable daily routine. He would see patients from 8 a.m. until 9 a.m., then work in the laboratory from 9 a.m. to 1 p.m. After lunch, he would nap for two hours, returning to the laboratory from 4 p.m. to 8 p.m. After his evening meal, he practiced his cello for at least one hour. In later years, he would retire from 11 p.m. to 2 a.m., awakening to work until 4 a.m. and then sleeping again until 7 a.m.

In 1892, Unna founded the first dermatology journal, *Monatshfte fur praktische dermatologie*, renamed *Dermatologische Wochenschrift* in 1912 and a pre-eminent dermatologic publication. During his 60 years of active practice, Unna wrote over 500 publications and 20 textbooks. His masterpiece, *Histopathology of the Diseases of the Skin*, published in 1894, is considered a landmark text, superseding the only previous work, Gustav Simon's textbook published in 1848. Unna's textbook was the first to describe both the clinical and the histologic features of all skin diseases recognized at the time. This 1200-page volume (Unna was the sole author!) took five years to complete and was based on Unna's experiences in his clinic.

Many of Unna's accomplishments relate to the field of histochemistry and histopathology. He was the first to propose that the chemical reaction between tissues and histochemical stains could be used to characterize features of the tissues. This was a revolutionary idea for the time (indeed, Unna's doctoral thesis was rejected by von Recklinghausen who felt it was improper to base scientific conclusions on staining reactions). Unna discovered or described plasma cells; mast cells; nevus cells; the degenerative tissue products of collagen and elastin; and the histopathological phenomena of acanthosis, spongiosis, ballooning and reticular degeneration in vesicular dermatosis. In 1895, Unna demonstrated the streptobacillus of chancroid in tissue supplied by Ducrey.

In order to support his research work, Unna established an association with the firm of Beiersdorf whereby the company supplied technical and financial support in return for the right to market his contributions. Through Beiersdorf, Unna introduced the first commercial toothpaste, the first adhesive tape, petroleum impregnated gauze and such products as Nivea Cream, Eucerin, Aquaphor, and Basis soap (the first super-fatted soap).

Around 1883, Unna began to experiment with a zinc oxide-gelatin paste incorporated into a cotton bandage to be applied to the skin. During a visit to the United States in 1887, he observed that skin plasters being made by Johnson and Johnson, while effective, were somewhat irritating. Unna found that neutralizing the acid plaster with the oxide of zinc resolved the irritation. Subsequently, all plasters incorporated zinc oxide as well as glycerin and other therapeutic compounds added by Unna as he sought to improve his plasters.

Unna continued to work until a few days before his death on January 29, 1929. The accomplishments of this giant in medicine range from his landmark contributions in histology to his mastery in patient treatment. The Unna boot is only a small part of the legacy that this physician left us. □

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***My Book For Kids With Cansur*, by Jason Gaes. Aberdeen, South Dakota: Melius and Peterson Publishing, Inc., 1987, 32 pages (\$11.95).**

Reviewed by Marie M. Lauria, ACSW, Clinical Social Worker, Pediatric Hematology/Oncology, North Carolina Memorial Hospital, Chapel Hill, NC 27514.

Personal accounts of battles against illness are commonplace, and an apparent winning of the struggle with the diagnosis and treatment of cancer has special appeal. What is not at all commonplace and what makes Jason Gaes's *My Book for Kids with Cansur: A Child's Autobiography of Hope* unusual is the fact that the young author was only eight years old when he wrote it. Written to offer encouragement to other children undergoing cancer treatment, Jason's book has a powerful message: "I want to tell you kids don't always die. If you get cansur don't be scared cause lots of people get over having cansur and grow up without dying."

Jason was six years old when he was diagnosed in June 1984 with Burkitt's lymphoma, a rare and rapidly growing cancer with an often fatal prognosis. He was treated at the Mayo Clinic in Rochester, Minnesota for two years. Jason's story recounts his experiences with "radiashun," "key-motharupy," and having his "toomers operated out." He offers realism tempered with reassurance: "Having cansur isn't fun. In fact its the pits but its not all bad either.... You have to have cansur to get invited to go to Camp Courage." He has specific advice for other kids about handling being discouraged and scared and even invites them to call him if it would help to talk things over. Jason doesn't even shirk the fact that sometimes a kid can die from cancer "even if you do everything [i.e., undergo all your treatment] just like everybody else..." He observes, however, that "we're just scared about going to heaven because we never been there. You can see you Grandpa again and pretty soon your Mom will be there too...cause everybody godda die sometime."

Jason's book, written in his own words and with his own spelling and punctuation, is illustrated by his twin brother,

Tim, and his older brother, Adam. Originally, it was photocopied and hand bound by his parents and used as the invitation to his victory-over-cancer party when treatment ended. The Minnesota Division of the American Cancer Society created its own photocopy for distribution prior to publication by Melius and Peterson. A portion of proceeds from the sale of the book is donated to the American Cancer Society.

Jason is now ten years old and a fourth grader. He is free from disease and an active boy who plans to be a doctor for kids with cancer—after he plays pro football. He lives with his parents, brothers, and a younger sister, Melissa, in Worthington, Minnesota.

Jason's book is an accurate, direct and honest child's-eye view of being a cancer patient. As those of us who work with children with cancer can testify, it exemplifies the acceptance, resilience and courage generally exhibited by these children as they face years of treatment. Jason captures and conveys, in a wonderfully simple and moving way the matter-of-fact manner in which a child can confront, and cope with, a major threat to life.

***The Hippocratic Oath: Text, Translation, and Interpretation* by Ludwick Edelstein. Baltimore, Maryland: The Johns Hopkins Press, 1943, 64 pages.**

Reviewed by Edward C. Halperin, M.D.

The Hippocratic Oath is still administered by many medical schools. The Oath is often incorporated in codes of medical ethics and resides in plaques on the walls of physicians' offices. The oath, however, was not always a widely accepted canon. In a painstaking textual analysis, Ludwick Edelstein demonstrates that the Oath was highly influenced by Pythagorean views prevalent during the fourth century B.C.—views which represented one of several competing schools of thought. The eventual triumph of the oath is related to the consistency of Pythagorean ethics with many aspects of subsequent Judeo-Christian tradition.

Edelstein's monograph is no longer widely available but your medical library may have a copy. It is well worth reading if you are interested in a detailed analysis of the Oath which many of us took but few of us truly understand. □

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Prescribing Addictive Medications

James H. Sanders, Jr., M.D., functioning member of the Committee on Drug Abuse and Pharmacy of the North Carolina Medical Society

With increasing knowledge of addiction we need to reassess our prescribing practices. Let's not quibble about what drugs are addicting. The old argument about whether a drug is physically or only psychologically addicting reminds me of an argument between theologians. If the effect or side effect of a drug causes a significant number of people to take it inappropriately and non-therapeutically for a prolonged time, then it is addicting. Certainly some are more addicting than others.

We must also remember cross addiction, where one drug can be substituted for another. Long ago cross addiction was recognized within certain classes of drugs (i.e., depressants—alcohol with barbiturates and benzodiazepines). Now we know that all the addictive drugs may be cross addicting. We use cross addiction to relieve the withdrawal symptoms of alcoholics with decreasing doses of barbiturates or benzodiazepines. We may easily forget that giving Valium to a sober alcoholic may make him start drinking again. Do not prescribe any addictive drugs to an alcoholic or other drug addict except for detoxification or for acute conditions treated in the hospital. Never send such a patient home from the hospital with a prescription for an addictive drug.

We must use greater caution in prescribing addictive medications to all of our patients and prescribe small quantities for short periods. If we do not observe this rule we will make addicts of 10% of these patients. Ten percent of us have the chemical and psychological tendency to become addicts. Many others will become dependent on the drugs so that withdrawal symptoms will make stopping them difficult.

Let's be more specific:

1 Don't give any addictive drug to patients with chronic pain problems. We know they don't work in chronic pain syndromes and the addicts you produce will haunt you. Chronic backache and recurrent and chronic headaches are

good examples of this type of problem.

- 2 Don't give "sleeping pills" to any patient for more than a short time. All hypnotics are effective for only a short period. Benzodiazepines, probably the most effective and safe hypnotics, may produce withdrawal symptoms after a patient takes them regularly for as little as three weeks or less.
- 3 Don't use benzodiazepines for anxiety symptoms for more than a few weeks because they lose their effectiveness and they are addicting.
- 4 Use narcotics regularly in big enough doses to give relief from severe acute pain but don't fall into the trap of continuing them if the pain becomes chronic.
- 5 Don't be conned into prescribing addicting drugs to patients you don't know even if they have good stories. The SBI says this is the way most prescription drug addicts are getting their drugs now.
- 6 Don't give addicting drugs when others will do just as well. Propoxyphene (Darvon) is probably less effective than aspirin or acetaminophen, is addicting and causes more deaths from overdose in North Carolina than any other prescription drug. Why use codeine, oxycodone (Percodan) or pentazocine (Talwin) if a non-steroid anti-inflammatory agent will do?
- 7 Don't use anorectics for weight reduction. They aren't effective and they are addicting.
- 8 Forget about causing dependence in terminally ill patients and give them what they need to keep them comfortable.

In conclusion, we must prevent the development of prescription drug addicts. We should not let ourselves be used to perpetuate addiction, but should treat or obtain treatment for the addicted. Finally, we must help sober alcoholics and drug-free addicts stay away from drugs that can cause relapse. □

Letters to the Editor

Ancient medical history

To the Editor:

The summer before beginning my medical studies at Duke University, I spent two months in South America. First, I wanted to practice my Spanish which had atrophied somewhat from disuse. Second, as a future physician, I was curious to see first hand how medicine was taught and practiced in this part of the world. Finally, I wanted to visit Cuzco and Machu Picchu, the cradle of the Inca civilization. Even before beginning medical school, my interest in neurosurgery was keen. For this same reason, the Incas fascinated me. This civilization performed many successful trephinations, a practice that is of special interest to neurosurgeons since it is the oldest known neurosurgical procedure. There are currently over 2,000 trephined Peruvian skulls in museums around the world. These skulls have provided the best evidence that cranial surgery was performed over 2300 years ago.¹ In fact, the oldest American skull was found near Cuzco around the year 500 BC.²

A great deal of other information has been gathered from these trephined skulls and from the Inca ruins. It is apparent that many patients survived their surgery. Healing has been noted around the edges of the bone as evidenced by the presence of osteophytes, the closing of the diploe, and the smooth surface of the bone edges. For anesthesia, the patient was often given coca leaves to chew, from which cocaine is derived.³ Intraoperative hemostasis was achieved by the application of extracts from native roots and shrubs that were rich in tannic acid or by applying beeswax to edges.⁴ Wax is still used today for hemostasis when working with bone.

There is still debate as to why these operations were performed. Many well known physicians have expressed their opinions on this matter. Gilbert Horrax, Dr. Cushing's first assistant for many years and a talented neurosurgeon in his own right, felt that the surgery was done to repair wounds inflicted during combat. To support his theory, he cited the predominance of male trephined skulls and the fact that most holes were on the left (the warriors were usually right handed and tended to inflict wounds on the victim's left side).⁵ Victor Horsley shared similar views stating that the operations were carried out to repair depressed skull fractures and that focal epilepsy could be cured by this procedure. As evidence, he cited the fact that most openings were situated over the motor strip which when irritated by the trauma, could produce convulsions on the opposite side of the body.⁶ Sir William Osler thought that the trephinations were done for various reasons including epilepsy, infantile spasms, headaches and

various cerebral diseases that the Incas believed were caused by demons. The craniotomy, therefore, provided the demons a route of escape.⁷ In the same vein, Horrax suggested that illness to the Incas meant that the soul was separated from the body and that if the soul could not return, death would ensue. The trephination provided a pathway for the return of the soul.⁵

Walking amid the ruins of Machu Picchu and Cuzco, one is first struck by the natural beauty of the mountains. Along with this beauty, the observer cannot help but be impressed by the ancient structures, many of which were temples. In spite of the many magical beliefs held by the Incas, it is evident from the splendor of the architecture that they also possessed a great deal of scientific knowledge. As with their architecture, it is likely that there was more to these trephinations than just religious ritual. From these early attempts at cranial surgery, the specialty of neurosurgery was born.

Machu Picchu, a fitting place to begin a career in neurological surgery.

Eugene Rossitch, Jr., M.D.
11 Putnam St., Apt 1-R
Somerville, MA 02143

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- 2 Broca P. La trepanacion chez les Incas. Bull Acad Imp Med 1886;52:866-71.
- 3 Sachs E. The history and development of neurological surgery. New York: Paul B. Hoeber, 1952.
- 4 Trelles JO, Fernandez-Enriquez VE. Sobre las trepanaciones craneanas en el antiguo Peru. Rev Neropsiq 1950;13:359-424.
- 5 Horrax G. Neurosurgery: an historical sketch. Springfield, IL: Charles C. Thomas, 1952.
- 6 Horsley V. Brain surgery in the stone age. Br Med J 1887;1:582-7.
- 7 Rifkinson-Mann S. Cranial surgery in ancient Peru. Neurosurgery 1988;23:411-6.

On Drugs and Pharmaceuticals

To the Editor:

I am writing you now as Chairman of the Committee on Drug Abuse and Pharmacy of the North Carolina Medical Society. Some of our committee members are interested in publishing articles on the subject of drug abuse and therefore we send, with your permission, the first such offering. It was

written by James H. Sanders, Jr., M.D., a Family Practitioner from Brevard, North Carolina.

Ronald B. Mack, M. D., Chairman
Drug Abuse and Pharmacy Committee
North Carolina Medical Society

Editor's reply:

Your committee addresses important problems and the editor hopes that members will submit papers. Each must stand on its own merits. In this issue, we publish the first paper submitted by a member of your committee (page 105).

On Nickels and Dimes

To the Editor:

You and your nickels and John D. Rockefeller, Sr. and his dimes remade the world. I still like my 50 question, blank, + or -, yes or no examination. Number one of which was: "Name me one illness or disease that you know the cause and cure. If you can answer this question you may ignore the other 49."

Another trick of the trade I used was a picture of a children's ward in an orthopaedic clinic, depicting various and sundry treatments, cast frames etc. The picture was posted on our bulletin board with a subtitle: "The ten lectures for this quarter will be on some of the diseases illustrated in this picture. You may write a picture story on each patient, diagnoses, treatment etc. and hand it in in lieu of attending lectures." Boy did that stir up a hornet's nest. The students fought all quarter and argued among themselves, with far better results than attending class would have done. But they knew to attend class.

Lenox Baker, M.D.
Durham

North Carolina Medical Society 1989 Meetings

SPRING CONFERENCE

March 15-18
Pinehurst Hotel
Pinehurst, NC

SPORTS MEDICINE SYMPOSIUM

June 30 - July 2
Shell Island Hotel
Wrightsville Beach, NC

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Continuing Medical Education

February 13-14

Diagnostic Ultrasound: Urology

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

February 22

Prevention and Early Detection of Heart Disease and Cancer in the Physician's Office

Place: Chapel Hill

Credit: 6 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118.

February 24-26

AIDS, HIV, and the Future (Winter Scientific Meeting of the NC American College of Physicians)

Place: Research Triangle Park

Credit: 9 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118.

March 3

Pediatric Day 1989

Place: Greenville

Credit: 6 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

March 3-4

Advances in Cataract Surgery

Place: Durham

Credit: 10.5 Hours Category I AMA 1.05 CEU

Info: Cindi Easterling, Office of CME, DUMC, Durham 27710. 919/684-6878

March 4

Current Concepts in the Treatment of Arthritis

Place: Raleigh

Fee: \$50

Info: Amy Byrd, Arthritis Foundation, 3801 Wake Forest Highway, Suite 115, Durham 27703. 919/596-3360

March 10 & 11

Family Practice Update - Sports Medicine

Place: Greenville

Credit: 9 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

March 14

Trauma and Emergency Medical Care 1989

Place: Greensboro

Info: Greater Greensboro Society of Medicine, 612 Pasteur Dr., Suite 404, Greensboro 27403. 919/854-1563

March 15-19

Internal Medicine 1989

Place: Chapel Hill

Credit: 25 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

March 31

Pulmonary Disease Update

Place: Greenville

Credit: 6 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

March 31

Third Annual Coagulation Conference on Thrombosis and Hemostasis

Place: Chapel Hill

Credit: 6 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

April 6-7

The 13th Annual Symposium of the Lineberger Cancer Research Center: Viruses and Cancer

Place: Chapel Hill

Info: Lineberger Cancer Research Center, CB# 7295, School of Medicine, University of North Carolina, Chapel Hill 27599-7295

April 12-14

Diagnostic Ultrasound: Physics

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

April 14-15

Seventh Annual ECU Biotechnology Symposium

Place: Greenville

Credit: 8 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

April 14-15

Advanced Cardiac Life Support Provider Course

Place: Asheville

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Fee: \$200/\$100 recertification

Info: Daniel D. Dolan, M.D., Course Director, MAHEC,

501 Biltmore Ave., Asheville 28801. 919/257-4419

April 16-19

Administrative Skills II: Planning Change and Conflict Resolution

Place: Quail Roost Conference Center, Rougemont

Credit: 20 hours Category I AMA, AAFP, 2.0 CEU

Info: Cindi Easterling, Office of CME, DUMC, Durham 27710. 919/684-6978

April 17-21

Diagnostic Ultrasound: Obstetrics

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

April 21-22

Pediatric Post-Graduate Seminar

Place: Winston-Salem

Credit: 9 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray Sch. of Med., Winston-Salem 27103. 919/748-4450

April 24-25

Concepts in Neonatal Pediatric Respiratory Care

Place: Chapel Hill

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

April 24-28

Diagnostic Ultrasound: Radiology (Abdomen)

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

April 27-May 1

Learning Disorders Course

Place: Chapel Hill

Credit: Approximately 28 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

April 28-29

Orbital and Oculoplastics

Place: Winston-Salem

Credit: 9 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray Sch. of Med., Winston-Salem 27103. 919/748-4450

April 28-29

Frank R. Lock Symposium in OB-GYN

Place: Winston-Salem

Credit: 10 hours Category I AMA

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VASOTEC®

(ENALAPRIL MALEATE) MSD

Contraindications: VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

Warnings: *Angioedema:* The face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

Hypotension: Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Heart failure patients given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in heart failure patients), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, *Drug Interactions* and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

Neutropenia/Agranulocytosis: Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Precautions: *General: Impaired Renal Function:* As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

Evaluation of patients with hypertension or heart failure should always include assessment of renal function. (See DOSAGE AND ADMINISTRATION.)

Hyperkalemia: Elevated serum potassium (> 5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See *Drug Interactions*.)

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Information for Patients:

Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

NOTE: As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions:

Hypotension: Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

Agents Causing Renin Release: The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methyl-dopa, nitrates, calcium-channel blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

Lithium: A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. Although a causal relationship has not been established, it is recommended that caution be exercised when lithium is used concomitantly with VASOTEC and serum lithium levels should be monitored frequently.

Pregnancy—Category C: There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies in pregnant women. VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: Milk in lactating rats contains radioactivity following administration of 14 C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Adverse Reactions: VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

Hypertension: The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

Heart Failure: The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

Cardiovascular: Myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, *Hypotension*), cardiac arrest, pulmonary embolism and infarction; rhythm disturbances; atrial fibrillation; palpitation.

Digestive: Ileus, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis.

Nervous/Psychiatric: Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

Urogenital: Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION), prostatic hypertrophy.

Respiratory: Bronchospasm, rhinorrhea, asthma, upper respiratory infection.

Skin: Herpes zoster, pruritus, alopecia, flushing, photosensitivity.

Other: Muscle cramps, hyperhidrosis, impotence, blurred vision, taste alteration, tinnitus.

A symptom complex has been reported which may include fever, myalgia, and arthralgia; an elevated erythrocyte sedimentation rate may be present. Rash or other dermatologic manifestations may occur. These symptoms have disappeared after discontinuation of therapy.

Angioedema: Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately (See WARNINGS.)

Hypotension: In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

Clinical Laboratory Test Findings:

Serum Electrolytes: Hyperkalemia (see PRECAUTIONS), hyponatremia.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g % and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

Other (Causal Relationship Unknown): In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported.

Liver Function Tests: Elevations of liver enzymes and/or serum bilirubin have occurred.

Dosage and Administration: Hypertension: In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, *Drug Interactions*.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

Dosage Adjustment in Hypertensive Patients with Renal Impairment: The usual dose of enalapril is recommended for patients with a creatinine clearance > 30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤ 30 mL/min (serum creatinine ≥ 3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

Heart Failure: VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, *Drug Interactions*.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, *Pharmacodynamics and Clinical Effects*.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

Dosage Adjustment in Heart Failure Patients with Renal Impairment or Hyponatremia: In heart failure patients with hyponatremia (serum sodium < 130 mEq/L) and with serum creatinine > 1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, *Heart Failure*, WARNINGS, and PRECAUTIONS, *Drug Interactions*.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD representative or see Prescribing Information. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19386.

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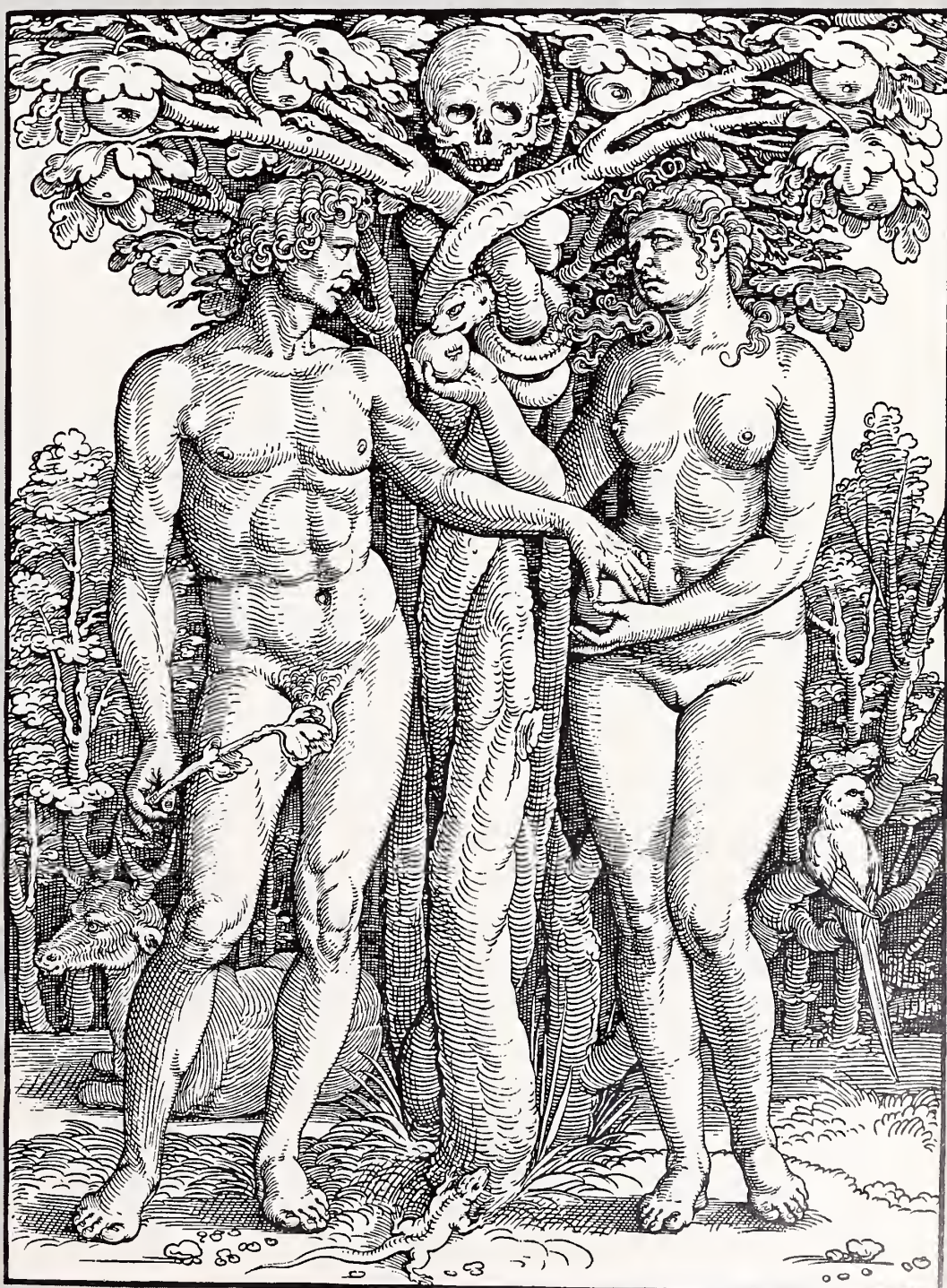
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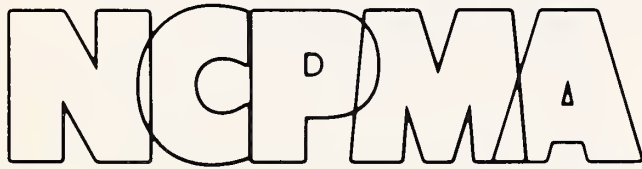
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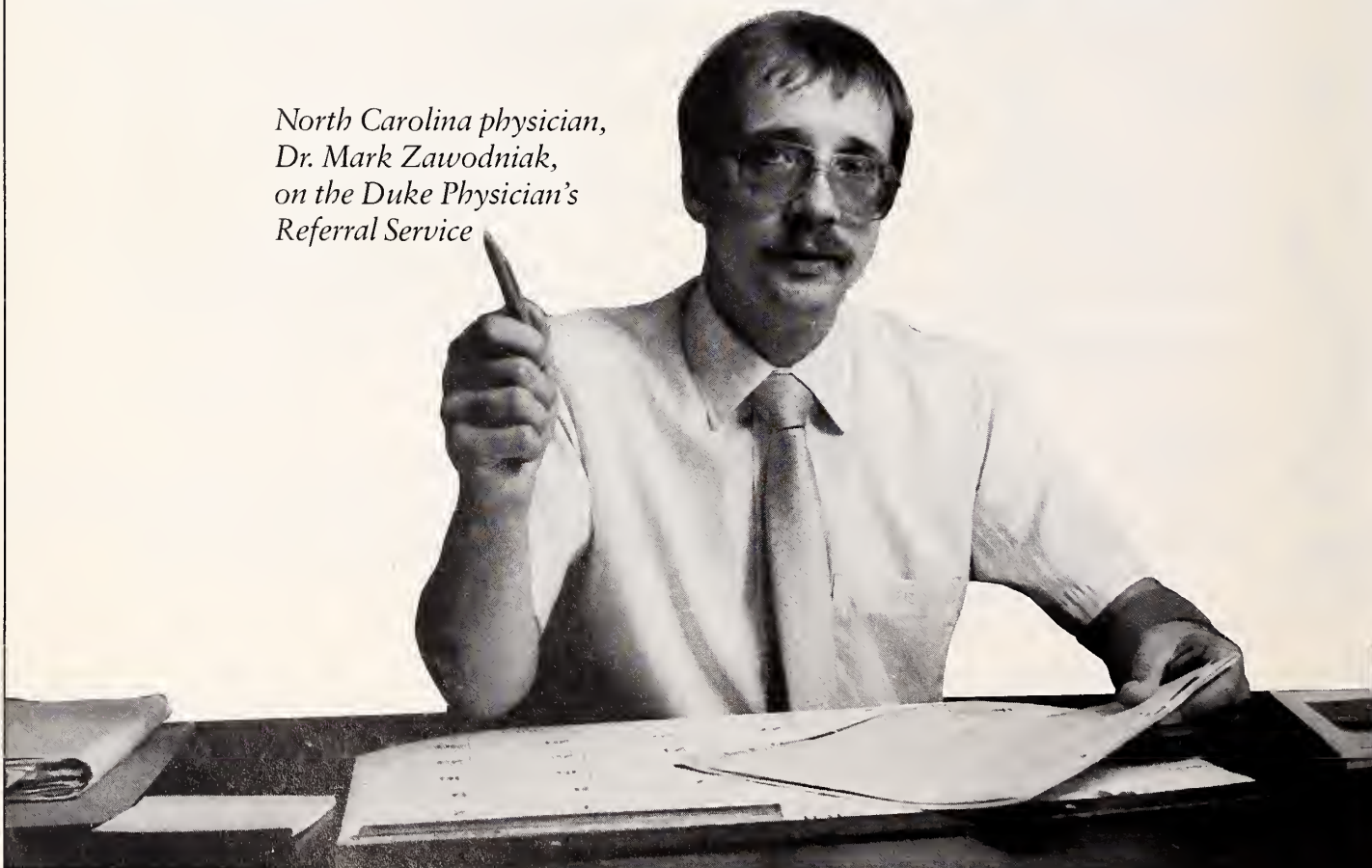
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About the Guest Editor

Jared N. Schwartz, M.D., Ph.D., is guest editor for this special issue of the *North Carolina Medical Journal* on Sexually Transmitted Diseases and AIDS. Dr. Schwartz is currently Director of the Department of Pathology and Laboratory Medicine for Presbyterian Hospital, and Medical Director of Laboratory for Presbyterian Specialty Hospital, in Charlotte, North Carolina. He received his medical training at Duke University, and served as Chief Resident of the Department of Pathology there from 1976 to 1977.

Dr. Schwartz has served as Chairman of the North Carolina Medical Society Sexually Transmitted Diseases and AIDS Committee since it was established in 1986. He has served as Chairman of the College of American Pathologists Program and Program Evaluation Committee since 1982, and as Vice-Chairman of its AIDS Task Force since 1987. He also holds several key positions with Presbyterian Hospital.

Dr. Schwartz has delivered over 250 lectures on AIDS to medical, business, and civic groups, including national, state, and community organizations. He was a member of the Center for Disease Control's Consensus Group on "Setting standards for the interpretation of the HIV antibody test, including Western Blot," and its Consensus Group on "Recommending revisions to the 'Universal Precautions Guidelines' for the protection of health care workers against HIV/Hepatitis B."

Among his many community activities, Dr. Schwartz is vice-president of the American Lung Association of North Carolina Metrolina Region, consultant to the United Way AIDS Study Group, and a member of the United Way Human Services Planning Council. He is a member of the Governor's Task Force on AIDS and the North Carolina Institute of Medicare's Ad Hoc Committee on AIDS. He also served as Medical consultant for the North Carolina Board of Education on "AIDS in School Curriculum."

Dr. Schwartz is an Ohio native and received his Bachelor of Science in Microbiology and Master of Science in



Mycology from Ohio State University. He received his Medical Degree in 1973 and his Ph.D. in Pathology in 1975, both from Duke University. He and his wife, Diane, have two children, Rachael, age 15, and Sarah, age 12. □

From the Guest Editor

Jared N. Schwartz, M.D., Ph. D.

In 1986, Dr. John Foust, as President of the North Carolina Medical Society, appointed the Task Force on Sexually Transmitted Diseases (STDs) and AIDS. The Task Force has since become the Committee, and its size has increased but its primary focus remains the same: education of members and the community. The membership of the Committee is diverse, with physicians in academic and private practice, and numerous specialties, including Internal Medicine, Pediatrics, Surgery, Obstetrics and Gynecology, Pathology and Laboratory Medicine, and Infectious Disease. A number of important resource people also serve, including representatives from the Division of Health Services.

In May, the Society's House of Delegates adopted Report B, a comprehensive set of recommendations regarding AIDS. Since then, the STDs and AIDS Committee has been working hard to implement the report's recommendations. The Committee continues to set new goals and initiatives for itself, as evidenced by the AIDS and STDs related position statements recently adopted by the Executive Council at the request of our Committee. Report B and the recently adopted position statements appear on pages 149-150 in this issue of the Journal. I encourage you to review them.

AIDS is a serious public health issue that requires sound public health policy unclouded by prejudice. The AIDS epidemic has struck all facets of our society—rich, poor; black, white; rural and urban. Very soon, every county in North Carolina will have reported at least one AIDS case. The number of AIDS cases in our state is doubling approximately every 15 months. By 1991, there will have been between 1,200 and 1,750 cases reported in North Carolina. During 1991, there will be approximately 500 persons with AIDS (PWAs) and 400 deaths from AIDS. The cost for hospital care in North Carolina alone, only a small part of the total medical and social costs, will be between \$56 million

and \$112 million that year. Still, the focus must remain on alleviating pain and suffering—physical and emotional—and in helping the community maintain its health.

The Society sees discrimination and fear of discrimination as the greatest barriers to controlling the spread of HIV. Those who are infected or at risk simply will not come forward for counselling, to be tested, or to supply names of sexual contacts or needle sharing partners if they feel they will lose their jobs or homes or otherwise be unjustifiably discriminated against. The Society maintains that the highest legislative priority is enactment of strong, clear, AIDS-specific legislation providing across-the-board prohibitions of discrimination against HIV infected individuals and PWAs in housing, employment, insurance, transportation, and organizations providing care.

AIDS is indeed a serious public health threat but we cannot turn our attention from STDs in general. The number of federal personnel assigned to the state to assist in counselling and contact tracing of people with STDs (excluding AIDS) has been reduced from 22 to only six. The Society supports funding for additional personnel and resources in the STD Control Branch of the North Carolina Division of Health Services. Controlling STDs and meeting the AIDS epidemic and the epidemic of fear associated with AIDS and HIV infection in North Carolina are challenges medicine and government must face together.

As members of the Committee we have been very busy educating ourselves and responding to questions from members, the community, the legislature, and the media. We have developed a speakers' bureau, sponsored educational workshops, and produced a slide presentation on STDs and AIDS available to Society members. The series of articles in this issue of the Journal is another of our continuing educational efforts for members.

STDs and AIDS are increasing and will be major problems for all physicians for the foreseeable future. It is critical that we be knowledgeable in the diagnosis, treatment, and follow-up care that these patients need. We hope this series of clinically oriented papers covering the major STDs and AIDS will be a positive addition to your knowledge base. □

From the Chairman, North Carolina Medical Society Committee on Sexually Transmitted Diseases and AIDS, P.O. Box 33549, Charlotte, 28233.

STOP LESIONS FROM SURFACING



An alarming rise in the incidence of genital herpes points to the need for better disease treatment. Fortunately, long-term maintenance therapy with ZOVIRAX® can help keep herpes patients lesion-free. In controlled studies of 4 to 6 months' duration, recurrences were totally prevented in up to 75% of patients. And during two years of clinical use, daily therapy has been shown to be generally well tolerated.¹ One capsule TID...the best way to stop lesions from surfacing.

Reference: 1. Data on file, Burroughs Wellcome Co.

ZOVIRAX®
(acyclovir) capsules

Keeps herpes patients lesion-free longer

Please see brief summary of prescribing information on next page.



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ZOVIRAX®

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Daily therapy helps keep patients lesion-free longer*

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk consideration in specific disease categories:

First Episodes (primary and nonprimary infections—commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS—Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established (see CLINICAL PHARMACOLOGY—Microbiology).

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parental doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficacy but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F₁ generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery

of sperm production was evident 30 days post-dose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day i.v. for one month.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rabbit (50 mg/kg/day, s.c. and i.v.) or in standard tests in the rat (50 mg/kg/day, s.c.). In a non-standard test in rats, fetal abnormalities, such as head and tail anomalies, were observed following subcutaneous administration of acyclovir at very high doses associated with toxicity to the maternal rat. The clinical relevance of these findings is uncertain. There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in standard animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS—Short-Term

Administration: The most frequent adverse reactions reported during clinical trials of treatment with Zovirax Capsules were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments with Zovirax Capsules (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), paronychia (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73 m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"—Bottles of 100 (NDC-0081-0991-55), and unit dose pack of 100 (NDC-0081-0991-56). Store at 15°-30°C (59°-86°F) and protect from light and moisture.

U.S. Patent No. 4199574

* In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.



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STD Quiz

James R. Fowler, Jr.

Guest Editor's Note:

The following quiz concerning current treatment options related to sexually transmitted diseases and AIDS is presented as an introduction to this issue of the Journal. Take a moment to test yourself by answering the following questions. I hope they will prompt you to read on.

Acquired immunodeficiency syndrome (AIDS) is a health problem of major proportions that has captured the attention of nearly every person in this country. Government at all levels, health care providers, citizen groups, schools, and many others have struggled to meet the challenge created by this devastating disease. While tremendous amounts of resources are being directed toward this new problem, the public and private medical community may tend to forget that other sexually transmitted diseases (STDs) continue to attack millions of Americans each year. These other STDs continue to cause severe emotional and physical damage to infected individuals, especially teens and young adults. North Carolina and the rest of the nation have continued to experience dramatic increases in syphilis, resistant gonorrhea, chlamydial infections, and chancroid. Venereal warts, herpes, and other STDs are also being seen in increasing numbers each year.

One of the most important weapons used to combat the spread of STDs is treatment with an effective drug. Because of the large number of diseases now known to be transmitted sexually and the host of new drugs developed to treat them, some physicians may not be aware of changes that have taken place in current treatment recommendations. The following sample questions will help medical personnel assess their knowledge of this subject.

- 1 Which regimen is the treatment of choice for *Trichomonas vaginalis* in women who are not pregnant?
 - a. Metronidazole, 2.0 g by mouth as a single dose.
 - b. Metronidazole, 150 mg by mouth twice daily for seven days.
 - c. Ampicillin 500 mg by mouth four times daily for seven days.
 - d. Miconazole nitrate 100 mg intravaginally daily for seven days.
- 2 Pregnant women infected with gonorrhea who are allergic to penicillin, cephalosporins, or probenecid, should be treated with:
 - a. Tetracycline HCL 500 mg by mouth four times a day for seven days.
 - b. Erythromycin base or stearate 500 mg by mouth four times daily for seven days.
 - c. Spectinomycin 2.0 g IM.
 - d. Doxycycline 100 mg by mouth twice daily for seven days.
- 3 A recommended treatment for a symptomatic or asymptomatic infant with syphilis is:
 - a. Aqueous crystalline penicillin G 25,000 units/kg IM or IV daily in two divided doses for a minimum of 15 days.
 - b. Aqueous procaine penicillin G 50,000 units/kg IV daily for a minimum of 15 days.
 - c. Aqueous procaine penicillin G 25,000 units/kg IM daily for a minimum of 10 days.
 - d. Aqueous crystalline penicillin G 50,000 units/kg IM or IV daily in two divided doses for a minimum of 10 days.

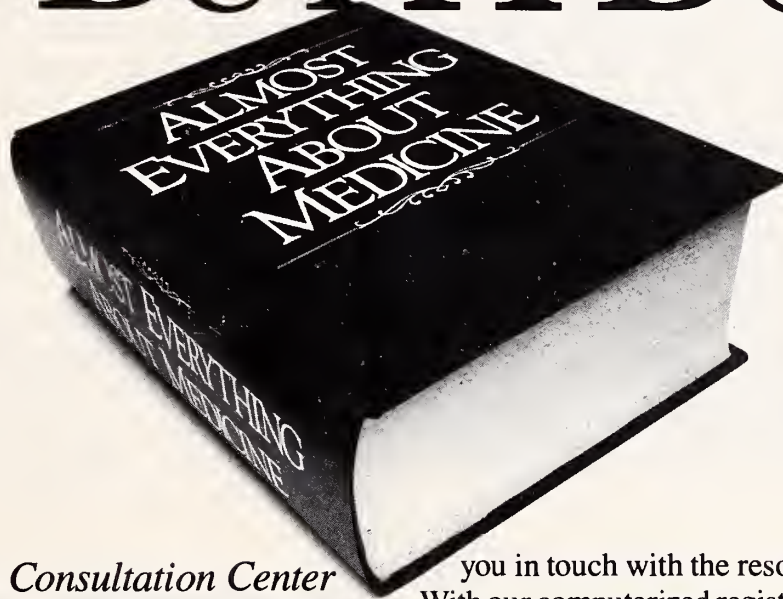
From STD Branch, Division of Health Services, North Carolina Department of Human Resources, Raleigh 27602.

- 4 In communities with a high incidence of resistant gonorrhea cases (Penicillinase-Producing *Neisseria gonorrhoeae*) the drug of choice is:
- Ceftriaxone 250 mg IM in a single dose.
 - Tetracycline HCL 500 mg by mouth four times daily for 10 days.
 - Cefoxitin 2 g by mouth four times daily.
 - Doxycycline 250 mg by mouth twice daily.
- 5 Among the combination ambulatory regimens recommended for treatment of acute pelvic inflammatory disease are Cefoxitin 2.0 g IM, or Amoxicillin 3.0 g by mouth, or Ampicillin 3.5 g by mouth, or aqueous procaine penicillin G 4.8 million units IM at two sites, or ceftriaxone 250 mg IM. Each of these regimens (except ceftriaxone) is followed by probenecid 1.0 g by mouth plus:
- Doxycycline 100 mg by mouth four times daily for seven days.
 - Clindamycin 100 mg IM in one dose.
 - Erythromycin ethylsuccinate 250 mg by mouth four times daily for seven days.
 - Doxycycline 100 mg by mouth twice daily for 10 to 14 days.
- 6 For a patient with nongonococcal urethritis (NGU) and for whom tetracyclines are contraindicated or not tolerated, the regimen of choice is:
- Spectinomycin 2 g IM in a single dose.
 - Erythromycin ethylsuccinate 250 mg by mouth four times daily for seven days.
 - Erythromycin base or stearate 500 mg by mouth four times daily for seven days.
 - Doxycycline 250 mg by mouth twice daily for seven days.
- 7 To reduce the signs and symptoms of genital herpes in the first clinical episode, the treatment of choice is:
- Acyclovir 200 mg by mouth five times daily for five days, initiated within two days of onset.
 - Acyclovir 200 mg by mouth every eight hours initiated within five days of onset.
 - Acyclovir 200 mg by mouth twice daily for 10 to 14 days initiated within five days of onset of lesions.
 - Acyclovir 200 mg by mouth five times daily for seven to ten days, initiated within six days of onset of lesions.
- 8 Early syphilis (primary, secondary, and latent syphilis of less than one year's duration) should be treated with:
- Benzathine penicillin G 2.4 million units total IM at a single session.
 - Benzathine penicillin G 2.4 million units IM once a week for three weeks for a total of 7.2 million units.
 - Tetracycline HCL 500 mg by mouth four times daily for 30 days.
 - Erythromycin 500 mg by mouth four times daily for 30 days.
- 9 Early syphilis patients who are allergic to penicillin should be treated with:
- Spectinomycin 2.0 g IM.
 - Cefoxitin 2.0 g IM.
 - Erythromycin base 500 mg four times daily by mouth for seven days.
 - Tetracycline HCL 500 mg by mouth four times daily for 15 days.
- 10 Chancroid is most often treated with Erythromycin 500 mg by mouth four times daily for seven days. An acceptable alternative is:
- Tetracycline 250 mg by mouth four times daily for 10 days.
 - Ampicillin 500 mg by mouth four times daily for seven days.
 - Ceftriaxone 250 mg IM in a single dose.
 - Erythromycin ethylsuccinate 250 mg by mouth four times daily for seven days.

Answers:

- a
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Syphilis

The Resurgence of an Old Disease

Kevin R. Porter, M.D.

Syphilis is a disease whose protean manifestations have been recognized since the 16th century. As noted by Sir William Osler, syphilis is "the great imitator"; "he who knows syphilis knows medicine." The approach to this disease has varied through the years and has been influenced by social, medical and economic attitudes. The effects of social awareness, educational programs and public health initiatives, coupled with the development of penicillin, sparked a decline in the incidence of syphilis cases in the United States from 72 per 100,000 in 1943 to 4 per 100,000 in 1956. The 1960s witnessed an increase in syphilis thought by many to be secondary to decreased funding for venereal disease programs and an increase in "the three Ps"—permissiveness, promiscuity and the pill. Although the years following 1982 saw a decline in primary and secondary syphilis, there has been a recent increase in some areas of the country. It therefore becomes appropriate to review syphilis and its many manifestations. This article will focus on the epidemiological, clinical and pathogenic mechanisms of syphilis, and review diagnostic and therapeutic considerations.

Epidemiology

Syphilis occurs most commonly in the 15-to-30 age group with a male to female ratio of 2:1. The disease is more common in non-whites than in whites. The incidence appears to be higher in urban than in rural areas. Approximately 35% of the cases in the U.S. occur in homosexual or bisexual males. However, the recent upsurge in U.S. cases cannot be attributed to increased cases in homosexual/bisexual males as the incidence in this group has declined in some areas. Furthermore, a significant portion of the rise has occurred in heterosexuals. Hypotheses for the increased incidence include an increase in spectinomycin use in treating gonorrhea

(spectinomycin does not appear to cure incubating syphilis), a decrease in syphilis control programs, and prostitutes exchanging sex (and also transmitting syphilis) for nonintravenous drugs more often.

The only natural hosts for *T. pallidum* are humans. Except for congenital syphilis and blood transfusions, the disease is acquired through contact with infectious lesions. It appears that about half of the contacts of patients with primary or secondary syphilis will contract the disease, and those with the disease report an average of three at-risk sexual contacts.

Clinical Manifestations

The clinical manifestations of syphilis vary with the stage of the disease. The localized signs and symptoms that occur after initial exposure have been categorized as primary syphilis. Subsequent illness results from systemic spread and is categorized as secondary syphilis, latent syphilis or late syphilis. Congenital syphilis results from in utero infection.

Primary Syphilis

After an incubation period ranging from three to 90 days, a localized ulcerated lesion, called a chancre, appears at the site of inoculation. The incubation period is inversely proportional to inoculum size. Chancres usually have a smooth base with regular, firm, raised edges and are clean unless secondarily infected. These lesions are painless and occasionally multiple. The more common sites in women are the cervix, mouth, perianal area and anal canal. Cervical lesions may appear as erythematous macules or large indurated nodules. In males, the penis, perianal area, anal canal and mouth are frequently involved. The latter three sites occur mostly in homosexual males. The chancre usually heals with or without scarring in three to six weeks. Occasionally, primary and secondary syphilis overlap with the chancre persisting as secondary signs and symptoms develop.

From Department of Medicine, Division of Infectious Diseases, Duke University Medical Center, Durham 27710.

Painless, non-suppurative, regional lymphadenopathy is seen in most infected persons. This occurs seven to ten days after the appearance of the chancre and may persist on into later stages.

Secondary Syphilis

Following the primary stage, spirochetemia ensues causing multiple organ involvement. One half of patients develop non-specific flu-like symptoms including fever, sore throat, myalgias, headache and weight loss. These symptoms usually appear from two to eight weeks after the disappearance of the chancre. Most commonly, the skin is involved with macular, maculopapular, papular or pustular lesions. These lesions usually begin on the trunk and proximal extremities and spread to the palms and soles. In AIDS patients, these lesions may clinically be mistaken for viral or fungal exanthems. Papules occurring in intertriginous areas may coalesce and form grayish-white plaques called condyloma lata. Follicular involvement results in loss of eyebrows and beard and patchy alopecia. Mucous membranes frequently demonstrate superficial ulcerations (mucous patches) that are silvery gray and surrounded by erythema. These lesions are highly infectious and usually resolve in two to 10 weeks if left untreated.

Eight to 30% of patients with secondary syphilis may have an elevated CSF protein and a lymphocyte pleocytosis. One to 2% of patients develop acute aseptic meningitis.

Visceral involvement occurs in less than 2% of persons and is manifested by hepatitis, hemorrhagic glomerulonephritis, synovitis, uveitis and gastrointestinal involvement. Hepatitis is characterized by marked elevations in alkaline phosphatase and moderately high bilirubin levels. It is usually associated with proctitis.

Latent Syphilis

This stage of the disease is manifested by a positive specific treponemal antibody test (see below) in the absence of clinical disease. In the early stage of latent syphilis (the first four years) a relapse of secondary syphilis may occur, with 90% occurring in the first year. Mucocutaneous sites are usually involved during relapses. Patients are considered to be infectious in early latent syphilis. During late latent syphilis, relapses are uncommon and most patients are resistant to reinfection. However, infection can still be transmitted congenitally or via blood transfusions.

Late Syphilis

Otherwise known as tertiary syphilis, this stage is characterized by progressive inflammation involving the nervous system, cardiovascular system, skin and bone. In cardiovas-

cular syphilis, *T. pallidum*-induced inflammation of the vasa vasorum (endarteritis obliterans) causes destruction of elastic tissue in large and medium sized arteries. The cerebral, carotid, hepatic, mesenteric, renal, iliac or femoral vessels may be affected, but commonly the aorta is involved, giving rise to aortic insufficiency, coronary artery disease and aneurysms. Approximately 10% of untreated patients develop cardiovascular syphilis and many will have simultaneous nervous system disease.

Neurosyphilis may be either asymptomatic or symptomatic. In the former, one or more CSF abnormalities occur in clinically normal individuals. From 3% to 33% of untreated patients will develop asymptomatic neurosyphilis. Endarteritis obliterans of the meningeal vessels (meningovascular syphilis) causes aseptic meningitis. Brain and spinal cord involvement may give rise to focal or generalized seizures or stroke. Destruction of nerve cells leads to nerve cell degeneration and widespread parenchymal damage (parenchymal syphilis). Posterior column, dorsal root and dorsal root ganglia demyelination results in tabes dorsalis which is characterized by ataxic gait, footslap, impotence, bladder problems, paresthesias, and loss of position, vibratory, deep pain and temperature sensation. Although any cranial nerve may be involved, VII and VIII are affected in 40% of patients. Other abnormalities caused by parenchymal syphilis include changes in personality, affect, speech, intellect, sensorium, reflexes and pupillary responses (Argyll Robertson pupils). These abnormalities are collectively known as general paresis.

Indolent, nonspecific granulomatous lesions, mainly involving the skin and bone, occur in approximately 15% of untreated patients and are referred to as gummas. They are variable in size and appear as painless, ulcerated, indurated or papulosquamous lesions found mostly on the face, scalp, anterior chest and pretibial areas. Fractures and joint destruction may occur due to bone involvement.

Congenital Syphilis

T. pallidum usually infects the fetus after the fourth month of gestation. Infection may result in stillbirth, or a live birth with signs of infection occurring at or after birth. Early congenital syphilis occurs in the neonatal period or within the first year of life and clinically resembles adult secondary syphilis. However, the skin lesions of early congenital syphilis may appear vesicular or bullous. Other signs and symptoms include iritis, a whitish and occasionally blood-tinged nasal discharge (snuffles), osteochondritis and perichondritis. The nose and lower extremities are frequently involved and are manifested by saddle nose and saber shin, respectively. Late congenital syphilis occurs when the disease persists beyond two years. Approximately 40% of these children develop clinical disease which includes interstitial keratitis, circumferential inflammation, vascularization of the cornea, bilateral knee effusions, Hutchinson's teeth, frontal bossing and

underdeveloped maxillas. Frequently, neurosyphilis occurs with eighth nerve deafness as a common manifestation.

Diagnosis and Treatment

Dark field microscopy of skin lesions may establish the diagnosis in patients with primary, secondary or early congenital syphilis. Caution must be used when examining oral mucous patches due to the presence of nonpathogenic colonizing treponemal organisms. Dark field examinations should be performed by experienced persons as a variety of artifacts may lead to false positive results. Direct and indirect immunofluorescence and immunoperoxidase staining can also be performed and in some instances may increase diagnostic yield.

The Venereal Disease Research Laboratory (VDRL) slide test is the standard nonspecific serologic test that detects *T. pallidum* induced antibodies to cardiolipin cholesterol-lecithin antigen. Other nonspecific tests such as the rapid plasma-reagin test (RPR) and automated reagin test (ART) are modifications of the VDRL. In primary syphilis the VDRL is positive in 60% to 85% of patients. The frequencies of positive test in secondary, latent and late syphilis are 99%, 75% to 90%, and 35% to 90%, respectively. After appropriate therapy, the test becomes negative after approximately one year for primary syphilis, two years for secondary syphilis and five years for late syphilis. A false-positive test may occur with a variety of other infectious diseases, pregnancy, connective tissue disorders, drug addiction and chronic liver disease.

The most commonly used specific serologic assay is the fluorescent treponemal antibody-absorption test (FTA-abs) which employs *T. pallidum* as the antigen. This test is highly specific and sensitive, and once positive, it remains positive for life. Other specific tests include the *T. pallidum* hemagglutination assay (TPHA-TP), which is less sensitive in early syphilitic disease, and the *T. pallidum* immobilization test (TPI) which in some instances is more likely to become nonreactive than the FTA-abs. Recently, a Bio-EnzaBead method was developed, and was shown to be as sensitive and more specific than the FTA-abs when tested on selected serum samples. As with the nontreponemal antibody test, false positives do occasionally occur. Therefore, the specific treponemal tests are best used in confirming a diagnosis, and the nonspecific test in screening and assessing response to therapy.

Penicillin is the drug of choice for all stages of syphilis. Patients with primary, secondary or latent (<1 yr) syphilis may be treated with a single injection of benzathine penicillin, 2.4 million units IM. Late syphilis (>1 yr, benign and cardiovascular syphilis) requires three weekly injections. In penicillin allergic patients, tetracycline or erythromycin, 500 mg orally qid for 15 days may be used, but therapy should be extended to 30 days for late benign and cardiovascular syphilis. In preliminary studies ceftriaxone has been shown

to be effective in primary syphilis. HIV infected patients may require more intensive therapy according to a recent case report of meningovascular recurrence in an HIV positive patient treated for secondary syphilis. Neurosyphilis should be treated with two to four million units penicillin G IV q4h for 8 to 10 days or procaine penicillin G, 2.4 million units IM plus probenecid 500 mg orally daily for 10 days. Alternative therapies include the same regimens for late benign and cardiovascular syphilis. Chloramphenicol two grams IV or po for 15 to 30 days may be theoretically beneficial. Tetracycline should not be used in pregnancy as it is harmful to the fetus. Congenital syphilis is treated with 50,000 units/kg of either penicillin G, IV qd in two doses, or procaine penicillin G IM qd for 10 days or more. Patients treated for primary, secondary, latent or congenital syphilis should receive follow-up evaluations and nontreponemal testing at three, six and 12 months with re-treatment for inadequate responses. Those with syphilis for greater than one year should receive a repeat test at two years. Neurosyphilitic patients should have serological and CSF evaluations every six months for at least three years. Individuals treated with an alternative regimen should receive especially close follow-up as these regimens have not been studied extensively. □

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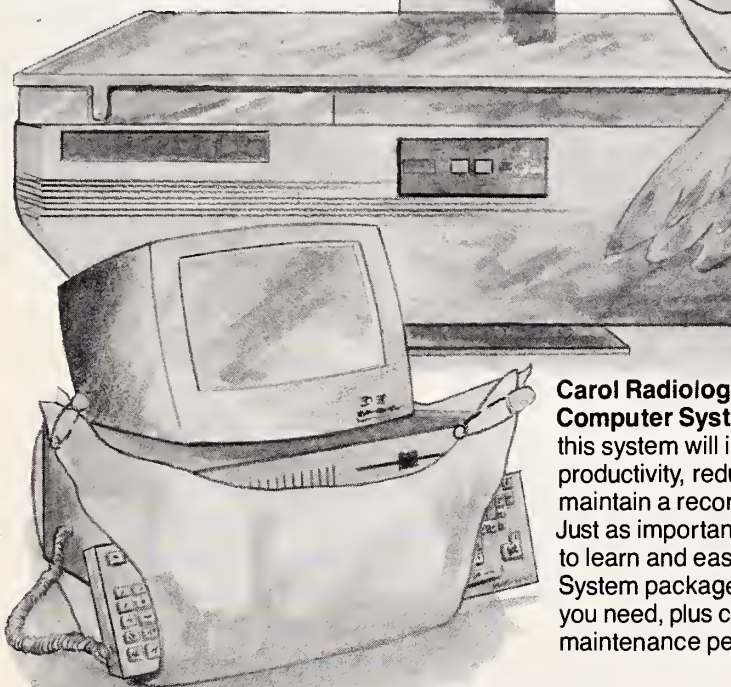
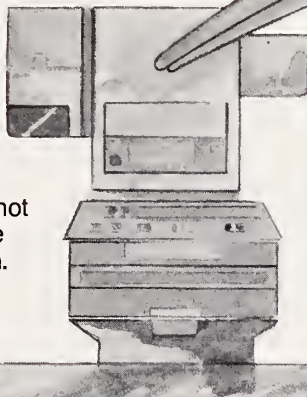
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Gonorrhea: An Overview for North Carolina Physicians

Christopher W. Ingram, M.D.

Neisseria gonorrhoeae infections present the primary care physician with many questions. First, what are the syndromes where the gonococcus may be present? Second, which of these infections are amenable to single dose therapy? Third, how should clinical specimens be collected in order to improve the diagnostic yield? Fourth, what are penicillinase producing *N. gonorrhoeae* (PPNG) and chromosomally mediated resistant *N. gonorrhoeae* (CMRNG) and are they in North Carolina? Finally, what are the current therapeutic options available? These questions and a step-wise approach to the treatment of gonorrhea in North Carolina will be addressed.

N. gonorrhoeae is the most frequently reported sexually transmitted disease (STD) in the United States. From 30,000 to 35,000 of the approximately 900,000 cases per year come from North Carolina. These infections occur most frequently in sexually active persons between 18 and 25 years old.

Gonorrhea is often the cause of urethritis or epididymitis in males, and urethritis, cervicitis, or pelvic inflammatory disease in females. Gonorrhea also may be considered in sexually active persons when evaluating conjunctivitis, vaginitis, pharyngitis, arthritis, and febrile exanthams.

Urogenital gonorrhea is the most frequently recognized infection in urethritis or epididymitis in men, and in cervicitis or urethritis in women. Pelvic inflammatory disease (PID) is the result of an ascending infection from the cervix and is associated with any bacteria including the gonococcus.

Rectal or pharyngeal gonorrhea may occur as a primary infection or in association with urogenital infection. Both infections are important because they are relatively resistant to some commonly used antibiotics. In addition pharyngeal gonorrhea may be associated with a higher risk of disseminated infection.

Uncomplicated urogenital, pharyngeal or rectal gonorrhea is amenable to single dose therapy. PID is a polymicrobial infection and requires prolonged therapy. Other gono-

coccal infections including disseminated gonococcal infections (DGI), arthritis, conjunctivitis, perihepatitis, endocarditis, meningitis, or osteomyelitis are less common and are not amenable to simple single dose therapy. These syndromes are not the subject of this discussion.

Confirming a clinical diagnosis of gonorrhea can be facilitated by promptly submitting the proper specimen to the microbiology laboratory for evaluation. Direct examination of urethral specimens in men or conjunctival specimens in both sexes for intracellular gram negative diplococci is an excellent diagnostic tool. A culture of a urogenital, rectal, or pharyngeal or conjunctival specimen should be plated at the bedside onto appropriate selective media (modified Thayer Martin, Martin Lewis, or New York City agar). Blood, synovial fluid, or other body fluids containing *N. gonorrhoeae* can be collected in the usual manner.

The therapy of gonococcal infections is based on antibiotic sensitivity and site of infection. Gonococcal antibiotic resistance is mediated through two genetic mechanisms, chromosomally mediated resistant *N. gonorrhoeae* (CMRNG) and plasmid mediated resistance. Two types of plasmids for drug resistance are known in gonococci: one for penicillinase (PPNG) and one for high-level tetracycline resistance (TRNG).

CMRNG, which are a worldwide problem, represent a continued evolution of antibiotic resistance by *N. gonorrhoeae* over 40 years of antibiotic use. Under this pressure of antibiotic therapy, CMRNG emerged through alterations in the bacterial cell wall permeability and binding proteins leading to an increase in the minimum inhibitory concentration to penicillin. The therapeutic response to these changes has been to increase the dose of penicillin or to add probenecid. Now, CMRNG are resistant to maximal single doses of penicillin and are more likely to be resistant to tetracycline, erythromycin, and certain other drugs. They remain susceptible to ceftriaxone and spectinomycin. In North Carolina, CMRNG represent less than 1% of all gonococcal strains isolated.

Plasmid mediated resistance was discovered in the mid-1970s when a plasmid conferring a beta-lactamase was

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noted. Since that time PPNG have become a significant problem in the Far East and in Africa, accounting for up to 50% of isolates. Some PPNG isolates are resistant to other antibiotics including tetracyclines, cefoxitin, and (rarely) spectinomycin. In North Carolina, PPNG account for less than 1% of all cases reported to the state. The individual at risk for either CMRNG or PPNG in North Carolina either comes from a high risk area or has a positive post treatment culture.

The site of infection also is an important consideration. Rectal and pharyngeal infection are relatively more difficult to eradicate. Rectal gonorrhea is somewhat refractory to amoxicillin and tetracycline therapy, and pharyngeal gonorrhea is not treated reliably with single-dose amoxicillin and spectinomycin.

Consideration of other, concurrent STDs has a bearing on the choice of antibiotic. Outside the United States chancroid or syphilis may be considered as potential concurrent pathogens, but in the United States, *Chlamydia trachomatis* is a frequent coinfection with gonorrhea in women and heterosexual men. This infection should also be covered with empiric therapy.

How does this information alter the standard treatment of uncomplicated gonorrhea? Because of the increased prevalence of CMRNG in the United States, parenteral penicillin with probenecid is being replaced in some regions by single-dose parenteral therapy with ceftriaxone (250 mg IM). In general, procaine penicillin is falling into disuse because of the risk of procaine reactions, which mimic anaphylaxis. The risk of PPNG or CMRNG is low in North Carolina, and amoxicillin or ampicillin may be used in the appropriate clinical situation.

Empirical single-dose therapy in adults could include any of the following: Amoxicillin (3.0 gms) or Ampicillin (3.5 gms) plus probenecid (1.0 gm) orally, OR Ceftriaxone (250 mg) IM, OR Spectinomycin (2.0 gms) IM.

If there is a high risk for PPNG, concurrent or primary rectal or pharyngeal infection, or previous failure of a penicillin regimen, ceftriaxone is indicated. Other second and third generation cephalosporins such as cefoxitin, cefotaxime, and ceftizoxime are effective but the one- to two-gram doses required are not cost effective when compared with 250 mg of ceftriaxone. The quinolones and the beta-lactamase inhibitor combinations deserve further study.

In addition, heterosexual men and all women should receive a seven-day course of tetracycline (500 mg four times daily) or doxycycline (100 mg twice daily) in order to eradicate concurrent chlamydial infection. Erythromycin base or stearate (500 mg four times daily) can be substituted for the tetracyclines when they are contraindicated such as in pregnancy.

After administering single-dose therapy it is important to follow up with a post treatment culture in three to five days to ensure eradication of the organism. Ideally *all* cultures should be tested for beta lactamase production.

In summary, the steps necessary for adequate treatment

of a gonococcal infection are (1) recognize the clinical syndromes where gonorrhea may be present, (2) plate cultures at the bedside, (3) include chlamydial coverage in addition to appropriate gonococcal therapy, and (4) follow up with post treatment cultures. If these steps are followed by *all* physicians then we will be able to accurately follow the development of antibiotic resistance and provide appropriate alterations in therapy in the future. □

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Chlamydial Infections

Leo E. Waivers, M.D.

Chlamydia trachomatis causes infections among more than four million Americans annually, it is estimated. There were over 11,000 cases reported in North Carolina in 1987. In primary care practices, the frequency of chlamydial infection is estimated between 4% and 9%, and rates increase to 20% to 30% in clinics for sexually transmitted diseases.¹ *C. trachomatis* has been reported as an etiologic agent in nongonococcal and postgonococcal urethritis, cervicitis, pelvic inflammatory disease, epididymitis, proctitis, lymphogranuloma venereum (LGV) and Reiter's syndrome.² Such infections result in significant morbidity for infected women, including sterility and ectopic pregnancy. It is important for the primary care physician to be knowledgeable in the detection and treatment of the common sexually transmitted diseases caused by *C. trachomatis*.

Background

In 1907, Halberstaeder and von Prowazek examined the infected conjunctival scrapings of orangutans and described the intracellular inclusions that they found as "mantled animals."³ Using the Latin term for wearing a cloak or mantle, *chlamydatus*, they were given the name chlamydia. There are two species to the genus *Chlamydia*—*C. psittaci* and *C. trachomatis*. The sexually transmitted diseases caused by *C. trachomatis* are the subject of this article.

The chlamydiae are small organisms which superficially resemble viruses but actually are obligate intracellular bacteria. Extracellularly, they exist as an "elementary body," a metabolically inactive, yet infectious, particle. Once phagocytosed by the host cell, they transform into a "reticulate body." In this form, they undergo growth and division, then eventually condense and revert to their "elementary" form. These particles are released following cell lysis into the extracellular space and propagate the infection. This interesting life-cycle is of clinical importance because these organisms are only susceptible to antibiotics during their intracellular stage.

Diagnosis

Unfortunately, there is no method to detect chlamydial infection which is both simple and highly accurate.

The first test to be developed identified the intracellular form through tissue culture of infected cellular material. This test has been modified recently and is still considered the "gold standard." It is highly specific (nearly 100%) and very sensitive (80% to 90%).⁴ Its clinical application has been limited by several factors. It takes three to seven days to complete, requires fastidious storage and transport of the specimen, and is relatively expensive.

Demand for a simpler and more rapid test led to the development of direct staining techniques, serological assays and antigen detection methods. Two of the antigen detection methods seem to be of the most value in practical clinical situations at this time. They are the direct immunofluorescence assay and the enzyme-linked immunoabsorbent assay (ELISA).

Direct immunofluorescence utilizes fluorescein-conjugated monoclonal antibodies which attach to the extracellular particles and are then identified with a fluorescence microscope. Using tissue cultures as a reference standard, this test has high sensitivity and specificity in high prevalence populations. It can be completed in 30 to 40 minutes and is less expensive than cell cultures. The main disadvantage is that it requires fluorescence microscopes and trained technicians.⁵ It is commercially available as the MicroTrak system from Syva Diagnostics.

The ELISA method detects the antibody-antigen complex through an enzymatic reaction, which can then be measured with a spectrophotometer. It is less sensitive than the direct immunofluorescence method but is nearly as specific. It does not require specially trained personnel, but it does take four hours to obtain a result.⁵ It is available as the Chlamydiazyme test from Abbott Diagnostics.

Diagnostic testing should be used to confirm clinical diagnoses of chlamydial infection and to screen asymptomatic women who are at moderate to high risk for infection. One study used decision analysis methods to demonstrate the cost-effectiveness of such routine screening. It was determined that either of the antigen detection methods noted

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prevalence of infection was at least 7%. Cell cultures would be cost-effective if the prevalence were greater than 14%.¹ Pregnant women should be screened at their first prenatal visit if they are younger than 20 years of age, unmarried, married with multiple sex partners, or have a history of sexually transmitted disease.⁶ Routine screening in asymptomatic men is not believed to be of benefit.⁷

Treatment

Currently recommended regimens for treatment of chlamydial infections include tetracycline 500 mg PO QID or doxycycline 100 mg BID for seven days. In patients who cannot tolerate tetracyclines or in whom they are contraindicated, such as pregnant women, an alternative regimen is erythromycin 500 mg PO QID for seven days.

Patients with confirmed urethral, endocervical or rectal chlamydial infection should be treated with one of the above regimens. Urogenital syndromes such as nongonococcal urethritis, mucopurulent cervicitis and acute urethral syndrome in which gonococcal infection is not established should also be treated with one of the above regimens. The decision whether or not to confirm the diagnosis should be made on the basis of the availability of such tests and the clinical situation.

Because coexistent chlamydial infection has been documented in a significant percentage of gonococcal infections,⁶ patients who present with gonococcal infections

(urethritis, cervicitis, etc.) should be presumptively treated for chlamydia at the same time. In cases of pelvic inflammatory disease, the duration of concomitant therapy should be extended to 10 to 14 days and for acute epididymo-orchitis to 10 days. The one exception is homosexual men, who are less likely to have a concomitant infection with chlamydia.

In every case, the patient should also be counseled as to the risks of sexually transmitted diseases and given suggestions for preventive measures. In addition, their sexual partners should be evaluated for infection. □

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Herpes Simplex Virus

James E. Peacock, Jr., M.D.

Like many sexually transmitted diseases, genital herpes simplex virus (HSV) infection has increased in incidence dramatically over the past two decades.¹ The Centers for Disease Control estimates that 500,000 to one million new cases of symptomatic first episode genital HSV infections occur each year in the United States, with the annual incidence of symptomatic episodes of recurrent genital herpes exceeding 20 million.¹

Transmission

Genital herpes is acquired via sexual contact with infectious secretions, with incubation periods ranging from one to 26 days (median, six to eight d).² Although classic teaching has emphasized transmission of infection from symptomatic patients with active lesions, recent studies suggest that asymptomatic viral shedding may have relatively greater importance than previously recognized.³ Some researchers have expressed concern about the role of the inanimate environment in transmission, but available data suggest that transmission by fomites is very unlikely.⁴

Clinical Features

By clinical convention, genital HSV infection is divided into first episodes and recurrences, both of which may be either symptomatic or asymptomatic.⁵ First episodes are further differentiated as being primary or nonprimary. Primary genital herpes may be due to either HSV-2 or HSV-1, whereas 98% of recurrences are caused by HSV-2.

First episodes of genital herpes, especially if primary, are usually associated with more systemic signs, more severe and prolonged local symptoms, more prolonged viral shedding, and higher rates of extragenital lesions and complications than recurrent infections.⁵⁻⁷ Lesions typically evolve

from vesicles to pustules to ulcers to crusts with healing over 14 to 21 days.^{5,6} Patients with nonprimary first episodes exhibit fewer systemic symptoms and faster healing than patients with primary genital herpes.⁷ Symptomatic recurrent genital herpes is much milder than primary disease, with healing occurring in seven to 10 days.^{5,6} For all forms of disease, women tend to have more severe clinical manifestations than men.^{5,6} Overall, 66% to 75% of patients with first episode genital herpes will experience recurrent disease.^{5,6} Risk of recurrences is influenced by HSV type and by the development of neutralizing antibody.⁵⁻⁷

Diagnosis

In previous years, the diagnosis of genital herpes was usually made on clinical grounds.^{5,8,9} However, with the increasing availability of specific, rapid and simple laboratory tests, laboratory diagnosis is now the norm, especially if there is doubt about the diagnosis, in cases of atypical genital ulceration, or if specific therapy, particularly long-term suppressive therapy, is being considered. The diagnostic sensitivity of available laboratory methods primarily depends upon the stage of the lesions, on whether infection is initial or recurrent, and on the status of host defenses.^{5,7,8}

Viral isolation in tissue culture remains the standard laboratory method for confirming HSV infection,^{5,8,9} though the cost, availability, and time required to obtain positive results are potential disadvantages of this technique.⁵ Characteristic cytopathic effects are apparent a median of four days after inoculation, with 65% of isolates identified within five days and 90% by 10 days.⁵ To obtain useful results, proper collection techniques are imperative. Specimens should be obtained using cotton- or dacron-tipped swabs (*not* calcium alginate swabs), placed in viral transport medium and held at 4°C until inoculated onto tissue culture.⁵ Because HSV is inactivated at -20°C, specimens should never be frozen. The overall sensitivity of viral isolation approximates 85%.⁸

Recently, tissue-culture and immunodiagnostic methods have been combined (e.g., modified tissue culture), allowing detection of virus within 24 hours after inoculation,

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even before overt cytopathic effects are seen.^{5,7,9} Sensitivities between 94% and 99% as compared to viral isolation in tissue culture have been reported.⁵

Direct detection of HSV antigens in clinical specimens is a recently introduced alternative to tissue culture.^{5,8,9} Using direct fluorescent assays, indirect immunoperoxidase or ELISA, sensitivities of 60% to 80% compared to culture have been demonstrated.^{5,8} Sensitivities of 85% to 90% have been reported if monoclonal antibodies are utilized.⁵ Results are generally available within 20 minutes to four hours after sampling and simultaneous typing of virus can be performed.⁵ A potential disadvantage of these direct techniques is their apparent low sensitivity for the detection of asymptomatic viral shedding (i.e., ~50% as compared to culture).⁷

Cytologic demonstration of HSV-induced cellular changes in clinical specimens using Pap or Tzanck smears, though widely available, simple, rapid and inexpensive, is only 40% to 50% as sensitive as culture.^{5,8,9}

Serologic assays, though widely used, have a limited role in diagnosis.^{5,7,9} Documentation of antibody titer changes from negative to positive can be used to confirm infection as primary, but four-fold titer changes are rarely observed in patients with recurrent disease.^{5,7,8} At present, serologic assays are best used to identify patients with past infections, though differentiation of HSV-1 from HSV-2 is still difficult if not impossible.^{5,7}

Therapy

To date, acyclovir is the only approved antiviral agent with demonstrated efficacy in the treatment of genital herpes.^{5,8,9} Topical, oral, and intravenous formulations of drug are all available, but the role of topical therapy is limited.⁵

In patients with first episode genital herpes, both IV and oral acyclovir significantly reduce the severity of clinical symptoms and shorten the duration of viral shedding and time to healing.^{5,8,9} Effects are greater for those with first episode primary infection than for those with first episode nonprimary disease.¹⁰ Thus far, therapy of first episode disease has not been shown to affect the risk of recurrent infection or subsequent recurrence frequency.^{5,8-10} For most first episodes of genital herpes, oral acyclovir is the treatment of choice.^{5,8,9} Intravenous therapy should be reserved for those patients with unusually severe symptoms or complications such as those which often accompany primary disease.^{9,10} The dose of oral acyclovir is 200 mg five times a day. Intravenous acyclovir is given at 5 mg/kg every eight hours.⁵ Therapy is continued for five to 10 days.

For recurrences of genital herpes, only oral acyclovir has been shown to be clinically effective, shortening the duration of symptoms and of viral shedding and enhancing healing.^{5,8,9} However, since the extent of symptomatic improvement is slight, oral therapy is recommended only for those episodes associated with significant symptoms.⁵ To maximize benefit, therapy should be initiated during the

prodromal phase if possible. The recommended regimen is 200 mg po five times a day for five days.

For most patients with frequently recurrent genital herpes, intermittent therapy for individual recurrences is unacceptable. Accordingly, the role of daily oral acyclovir in the chronic suppression of symptomatic recurrences has been investigated recently, with suppressive treatment reducing mean yearly recurrence rates from 12.7 to 1.4.¹¹ Although there are breakthrough recurrences occasionally, they are usually mild and associated with decreased viral shedding. Encouragingly, no evidence of cumulative toxicity has been noted after more than two years of continuous therapy.¹¹ The currently approved dosage for chronic suppressive treatment is 200 mg po tid.⁵

Side effects associated with acyclovir are infrequent.^{5,8,12} With IV therapy, infusion site toxicity (e.g., phlebitis) and transient elevations in serum creatinine have occasionally been described. Oral therapy has been associated only with mild gastrointestinal intolerance which occurs most frequently in persons who are lactose intolerant. Hypersensitivity reactions are rare as are neurologic side effects.

Prevention

As is true for all sexually transmitted diseases, a monogamous lifestyle and careful selection of sexual partners are among the most effective measures to reduce the risk of acquiring genital herpes.⁵ Barrier forms of contraception (e.g., condoms) may reduce the transmission of infection but do not offer absolute protection.^{5,8} Likewise, chronic prophylaxis with oral acyclovir decreases the frequency of active lesions and reduces viral shedding, but the impact of prophylaxis on disease transmission is unknown. Subunit HSV vaccines to prevent primary acquisition of infection are now undergoing clinical testing, but the role of vaccination in long-term prevention remains to be defined.^{5,9} □

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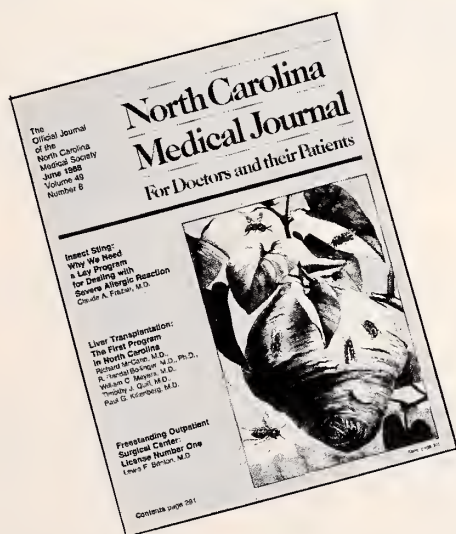
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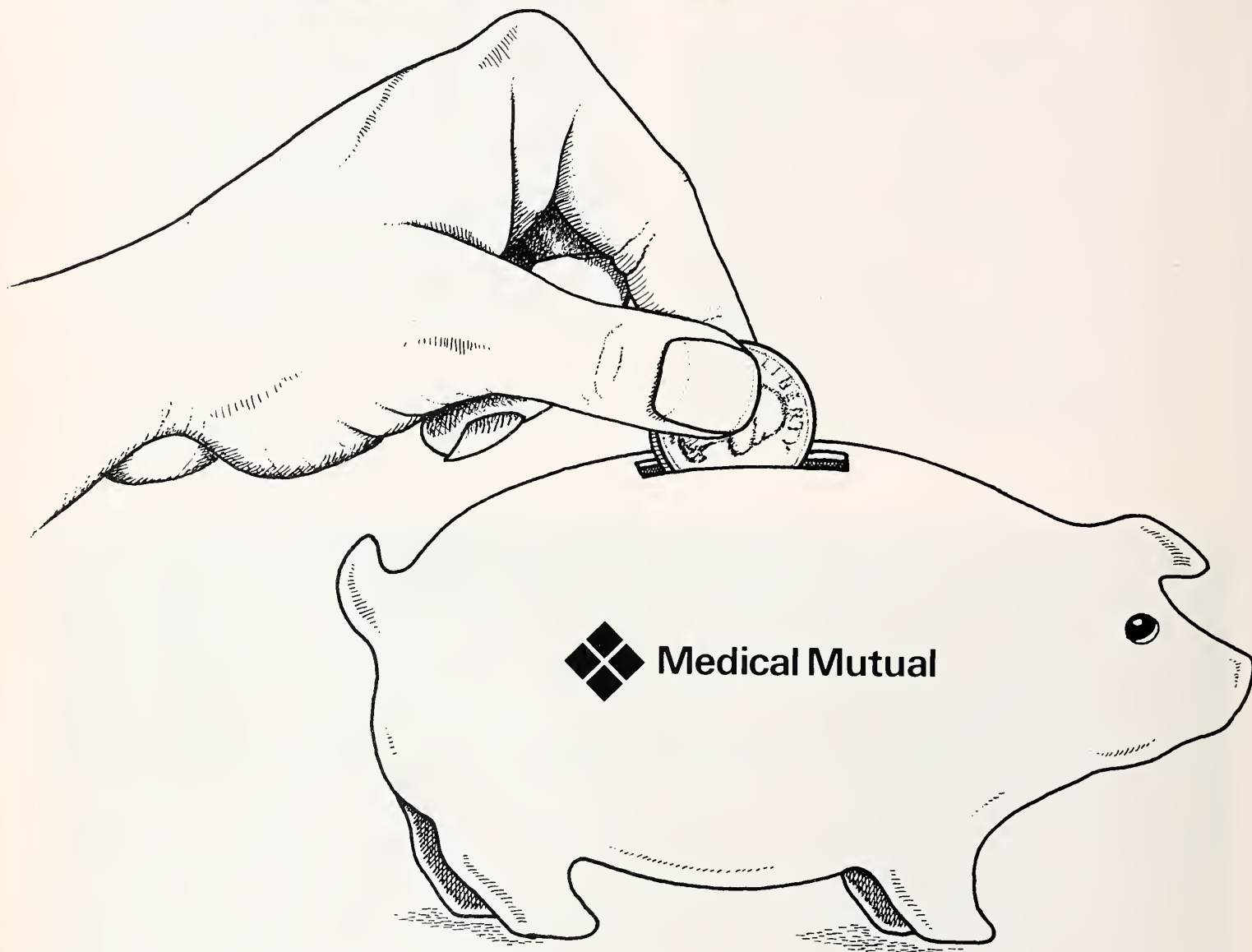
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VOLUME 50 / NUMBER 3 / MARCH 1989

Heart Disease

CHOLESTEROL

Fredrick L. Dunn, M.D.

The association between high blood cholesterol levels (hypercholesterolemia) and coronary heart disease has been known for some time, but only recently has it been shown that lowering elevated cholesterol levels with diet and/or drugs can reduce the risk of heart disease. Since almost one-half of the American population has blood cholesterol levels that increase their risk of developing coronary heart disease, the detection and treatment of hypercholesterolemia has become a major public health concern.

What are lipids?

Lipids are fats (oils) found in the blood. The lipids usually measured for medical evaluation are cholesterol and triglyceride. These lipids function in a variety of ways, and are essential for the normal functioning of the body's metabolism.

Cholesterol is a waxy substance found in all foods of animal origin. Although it is a part of every animal cell, cholesterol is not contained in foods from plant sources. Cholesterol is needed to make essential body substances such as certain hormones, bile and cell walls. Even if you didn't eat

any cholesterol, your liver would produce it for your body's needs. The main sources of cholesterol in the diet are eggs, meat, cheese and whole milk. Excess levels of cholesterol in your blood can be caused by diet, certain medications, diabetes, thyroid disease, kidney disease and inherited (familial) disorders.

When the blood accumulates too much fat, problems may develop. This occurs when the lipids, especially cholesterol, exceed a certain level. This condition is called **hyperlipidemia** or **hypercholesterolemia**. The primary disease associated with this is **atherosclerosis** or hardening of the arteries. The excess cholesterol participates in the formation of plaques which narrow and clog the large arteries of the body. The arteries of the heart are often affected. This is referred to as **coronary artery disease**. Heart attacks or angina are the result of coronary artery disease.

Elevated cholesterol levels are a major cause of premature atherosclerosis and coronary heart disease. In the Framingham Heart Study, the relationship between cholesterol levels and risk of developing coronary heart disease was studied in individuals with no known coronary heart disease. They found that as cholesterol levels increased above 200 mg/dl, there was a marked and progressive increase in the risk of developing atherosclerosis. For example, a cholesterol level of 250 mg/dl doubles your risk of developing coronary heart disease, and a cholesterol level of 300 mg/dl increases your risk four-fold. In addition, the presence of other cardio-

vascular risk factors, such as hypertension, cigarette smoking or diabetes mellitus, may double or triple the risk of hypercholesterolemia.

What are lipoproteins?

Since cholesterol is a fat and does not mix with water, it can not pass through the blood by itself. It has to be "packaged" in a protein cover called a **lipoprotein** to enable it to travel through the blood stream. Several different lipoprotein packages contain cholesterol: low density lipoproteins, high density lipoproteins and very low density lipoproteins. The total cholesterol in the blood is the sum of the cholesterol contained in these different lipoprotein packages. It is important for your physician to know the values of these separate lipoprotein components to understand which ones are causing the elevation of your total cholesterol.

Low density lipoprotein (LDL) is one of the "packages" that contain cholesterol. It is the most important lipid component measured as it contains the highest percentage of cholesterol and is the major contributor to the total cholesterol. Studies have shown that elevated levels of LDL cause cholesterol plaques to form in the blood vessels, and that lowering elevated LDL cholesterol levels with diet and/or drugs can reduce the risk of coronary heart disease. This is why it is sometimes referred to as the "bad" cholesterol. In fact, decisions about beginning medication for treatment of high cholesterol levels are usually based on the LDL cholesterol level.

Like LDL, **high density lipoprotein (HDL)** is a combination of protein and cholesterol particles. The cholesterol content of HDL is a relatively small fraction of the total plasma cholesterol level, usually about 20 to 25 percent. Unlike LDL, however, a low level of HDL is considered to be a risk factor for heart disease, while a high level may be beneficial. That is why it is sometimes referred to as the "good" cholesterol. Women tend to have higher HDL values than men. This is due to the female hormone estrogen. Certain conditions lower HDL. These include being overweight, cigarette smoking, lack of exercise, diabetes and high triglyceride levels. Obtaining regular exercise, stopping smoking, losing excess weight and controlling diabetes (if present) can raise your HDL level.

Triglycerides are another kind of fat. They are "packaged" and transported through the blood by **very low density lipoproteins (VLDL)**. VLDL also contains a small amount of cholesterol, and some patients with high triglycerides may have an elevated cholesterol level due to increased VLDL. As with cholesterol, the body makes triglyceride, in addition to the supply that is received from food. The primary function of triglyceride in the body is to serve as a source of "stored energy." Most of the body's triglyceride is found in fat tissue throughout the body. High blood triglyceride levels can be caused from eating too much fat or just from too much food

in general (overeating or obesity), high blood sugar (diabetes), drinking too much alcohol and inherited (familial) disorders. It is not clear if elevated triglycerides alone are a risk factor for heart disease. However, very high levels (greater than 500 mg/dl) place a person at risk for developing inflammation of the pancreas (pancreatitis).

How is hyperlipidemia diagnosed?

Very often, the only way a person becomes aware of elevated lipids is from the results of routine laboratory work. There are no "early" symptoms of hyperlipidemia. Unfortunately, the first symptom a person may suffer can be a heart attack, or more frequently chest discomfort due to angina (a lack of blood flow to the heart). If the elevated levels are detected before a person develops coronary artery disease, it is important to lower them to prevent the onset of symptoms. If a person already has evidence of atherosclerosis, it is essential to lower the levels to help prevent the disease from getting worse.

The National Cholesterol Education Program, sponsored by the National Heart, Lung and Blood Institute and the American Heart Association, recently issued guidelines for detecting and treating hypercholesterolemia in adults. They recommended that all adults over the age of 20 be tested for their serum cholesterol. Children of families with premature coronary heart disease should also be screened. The blood sample for serum cholesterol can be obtained at any time of the day, and does not require fasting. Acute illness or myocardial infarction (heart attack) can lower cholesterol levels, so patients with either of these conditions should have their blood lipids remeasured 2-3 months later. The actual level that one calls elevated is no longer age and sex adjusted. Current recommendations by the National Cholesterol Education Program for total blood cholesterol levels are as follows:

High: greater than 240 mg/dl
Borderline High: 200-239 mg/dl
Desirable: less than 200 mg/dl

If the serum cholesterol is less than 200 mg/dl, no further evaluation is needed, and the patient should be advised to have a repeat serum cholesterol measurement in 5 years. Patients with a cholesterol greater than 200 mg/dl should have the value confirmed with a second cholesterol test. If the cholesterol level is greater than 200 mg/dl but less than 240 mg/dl, and the patient does not have coronary artery disease or other cardiovascular risk factors, then he or she should be advised to follow a low cholesterol diet and have a repeat cholesterol measurement in a year. If the patient has coronary artery disease, two or more other cardiovascular risk factors

or a cholesterol level greater than 240 mg/dl, then further testing is indicated.

A complete assessment of a patient's lipid status requires measurement of a lipoprotein profile. This consists of total cholesterol, triglycerides, HDL cholesterol and LDL cholesterol. It is important that the blood sample for a lipoprotein profile be obtained after a 12-hour fast, because triglyceride levels vary with dietary intake. HDL cholesterol levels are measured directly, whereas LDL cholesterol levels can be calculated if the triglyceride levels are not too high (less than 400 mg/dl). In addition, your physician must be aware of the methods and standards of the clinical laboratory he or she uses. Some commonly used methods for determining cholesterol levels may report values higher than the referenced standards used to develop the National Cholesterol Education Program guidelines.

Treatment of hyperlipidemia

There are several ways to approach lowering elevated cholesterol and lipid levels. Every person with elevated lipid levels should follow a low fat, low cholesterol diet. People who are overweight need to lose the extra pounds. Exercise is encouraged. Elimination of other risk factors such as smoking and control of ones that can't be eliminated (diabetes, high blood pressure) can help to reduce the risk of atherosclerosis.

Although eating lower fat foods is important, not everyone will respond adequately to diet alone. If your lipid levels stay too high, medications may be recommended. The medication must be used in conjunction with a diet. Recent recommendations by the National Cholesterol Education Program are that decisions about treatment of patients with hypercholesterolemia be based primarily on the LDL cholesterol levels, according to the following categories:

High-Risk: greater than 160 mg/dl
Borderline High-Risk: 130-159 mg/dl
Desirable: less than 130 mg/dl

Although the level of HDL cholesterol is inversely related to coronary heart disease risk, there is no direct evidence that raising HDL cholesterol levels reduces the risk of coronary heart disease. The level of serum triglyceride is currently not considered to be an independent risk factor for coronary heart disease, although it is often a marker of a high risk patient. For that reason, patients with hypertriglyceridemia (greater than 250 mg/dl) should also be treated with a low cholesterol, low saturated fat diet, weight loss, if obese, and alcohol restriction.

Diet is the first step in the management of hypercholesterolemia. The diet recommended by the American

Heart Association limits cholesterol intake to less than 300 mg/day, total fat calories to less than 30% of daily intake, and saturated fat to less than 10%. High risk patients should begin a program of dietary therapy. High-risk patients are those who have an average LDL cholesterol level greater than 160 mg/dl, or with a level of 130-159 mg/dl with "high risk status." Patients are considered to have a "high-risk status" if they have coronary heart disease or two or more other coronary heart disease risk factors: male sex, family history of premature coronary heart disease, cigarette smoking, hypertension (high blood pressure), low HDL cholesterol (less than 35 mg/dl), diabetes mellitus or severe obesity (more than 30% overweight). Dietary therapy should be employed for six months before considering the use of drugs. If after three months the desired response is not obtained, the diet should be restricted further (cholesterol less than 200 mg/day and saturated fat less than 7% of calories). It is also useful for patients to review their low cholesterol diet with a registered dietitian for help in adhering to the dietary therapy.

The response of an individual patient to diet is variable. Some patients are diet resistant, even if they follow the prescribed diet, while other patients may have a tremendous drop in their cholesterol levels with only moderate dietary changes. In general, most patients who conscientiously follow a low cholesterol, low saturated fat diet can expect to lower their serum cholesterol level by 10 to 20%.

Drug therapy should be considered for patients who, after a trial of dietary therapy, have: (1) an LDL cholesterol level greater than 190 mg/dl; or (2) an LDL cholesterol level greater than 160 mg/dl if there is either coronary heart disease or two or more other cardiovascular risk factors ("high risk status"). These criteria, recommended by the National Cholesterol Education Program, are not designed for all individuals. For example, drug therapy may not be appropriate for some patients, particularly the elderly and children. Some individuals with hypertriglyceridemia may also be candidates for drug treatment, particularly if they have coronary heart disease, an elevated cholesterol level or a strong family history of coronary heart disease. Very high triglyceride levels (greater than 500 mg/dl) may require treatment to prevent pancreatitis.

The drugs of first choice for the treatment of hypercholesterolemia are the bile acid resins and nicotinic acid. Both of these agents have been used in long-term clinical trials and have been shown to reduce the risk for coronary heart disease. In addition, they appear to be free of serious long-term adverse effects. However, both have a significant number of side effects which make it difficult for many patients to take them successfully.

The bile acid resins are cholestyramine (Questran) and colestipol (Colestid). Both of these agents are powders which must be mixed with liquid before being taken. They work by absorbing bile and cholesterol in the intestines. Their main side effects are constipation, bloating and gas.

Nicotinic acid or niacin is actually a vitamin. However,

when it is used to lower cholesterol levels, it is used at much higher doses than needed as a vitamin and should be considered a drug. It is very effective in lowering cholesterol and triglyceride levels, and in addition raises HDL cholesterol levels. Its main side effect is flushing, which often occurs 30 minutes after taking a dose. Other side effects include dry skin, rashes, liver problems, peptic ulcer, gout and increased blood sugar. In patients with diabetes, nicotinic acid can cause diabetes to go out of control.

A new class of drugs for lowering LDL cholesterol prevents the liver from making cholesterol. The first agent in this class is lovastatin (Mevacor), but others will probably be released shortly. These agents are very effective, have few side effects and are easy to take. However, their long-term safety is not yet proven.

Other useful drugs are probucol (Lorelco), clofibrate (Atromid-S) and gemfibrozil (Lopid). Probucol causes a

moderate reduction of LDL cholesterol, but also can cause a decrease in HDL cholesterol. Clofibrate and gemfibrozil are most effective for lowering elevated triglyceride levels. Their effect on LDL cholesterol levels is variable. Gemfibrozil also increases HDL cholesterol levels. In the Helsinki Heart Study, gemfibrozil was very effective in reducing the risk of developing coronary heart disease in men with high lipid levels.

If the response to treatment with a low cholesterol diet and single drug therapy is not adequate, then combined drug therapy may be needed. For patients with severe hypercholesterolemia, the combination of two or more agents can be effective. Patients with elevations of both cholesterol and triglyceride may also require two agents for adequate control. Patients whose high cholesterol or triglyceride levels continue after diligent efforts at diet and drug therapy should see a lipid specialist.

What Everyone Should Know About AIDS

What Is AIDS?

AIDS (Acquired Immune Deficiency Syndrome) is a condition which damages the immune system, the body's defense against disease. This damage leaves the body open to attack by infections and cancers that are not a threat to healthy people. It is these infections and cancers that kill many people with AIDS.

What Causes AIDS?

AIDS is caused by the Human Immunodeficiency Virus or HIV. Not everyone who is infected with HIV develops AIDS. Some infected persons seem to remain in good health. Others develop AIDS-Related Complex or ARC. People with ARC have illnesses that range from mild to severe, but usually these illnesses are not life-threatening. We do not know why some people infected with HIV remain healthy, some develop ARC, and some AIDS. Factors such as drug and alcohol abuse, stress and other illnesses may increase the likelihood that an infected person will develop AIDS.

How Is HIV Transmitted?

The virus that causes AIDS is transmitted only by direct and intimate contact with infected body fluids, primarily blood, semen and vaginal secretions. You can not get AIDS by casual contact. The HIV is transmitted:

- by unsafe sexual practices. These are practices that involve the exchange of blood, semen or vaginal secretions with someone who is infected with HIV. An infected person may look and feel well.
- by sharing needles. Drug users who share needles may inject themselves with small amounts of blood from someone who is infected with HIV.
- through transfusions of infected blood or blood products. This is now extremely rare because all blood donations are screened for signs of HIV infection.
- from an infected mother to her infant before or during birth or perhaps from breastmilk.

How Contagious Is AIDS?

AIDS is not highly contagious. HIV is not spread through the air, in food, or by casual contact at home, work or school. No

one who lives with a person with AIDS or HIV infection has been infected by routine household contact. AIDS is not spread by:

- handshakes, hugging or casual kissing;
- sneezing, coughing or spitting;
- dishes, utensils or food handled by a person with AIDS;
- toilet seats, bathtubs or sinks used by a person with AIDS.

You cannot get AIDS by donating blood. Blood banks and other blood collection centers use sterile equipment and never reuse needles. The need for blood is great and people who are not at risk for AIDS are urged to continue donating blood.

Who Is at Risk for Getting AIDS?

Anyone who engages in certain behaviors is at risk for getting AIDS. The high-risk behaviors are sharing needles and exchanging blood, semen or vaginal secretions with someone who is or might be infected with HIV. In the United States, most persons with AIDS belong to one of the following groups:

- homosexual and bisexual men;
- intravenous (IV) drug abusers;
- hemophiliacs;
- heterosexual partners of persons in any of these groups;
- infants born to mothers infected with the AIDS virus.

So far very few heterosexuals in North Carolina who are not members of one of these groups have gotten AIDS. However, this could change in the future so heterosexuals should also take precautions to avoid contracting HIV.

In the past, some persons became infected with HIV when they were transfused with HIV-infected blood. Almost all infections from transfusions occurred between 1978, when HIV first entered the United States, and 1985, when screening blood for HIV infections began. However, very few people who had blood transfusions between 1978 and 1985 received infected blood. Now all blood is screened. In addition, persons who have engaged in high-risk behaviors are asked not to donate blood. Today the risk of getting AIDS from transfusions is extremely low.

What Are the Symptoms of AIDS?

Many of the symptoms of AIDS are also symptoms of minor illnesses like colds or flu. With AIDS the symptoms don't go away or they keep coming back. See a health care provider if you are at risk for AIDS and any of these symptoms last several weeks or more:

- unexplained tiredness;

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- unexplained weight loss greater than 10 pounds;
- fever or night sweats;
- diarrhea;
- white spots or unusual marks on the tongue or mouth;
- swollen glands, usually in the neck, armpits or groin;
- dry cough not caused by a cold or flu;
- pink, blue or purple blotches on the skin, inside the mouth, nose, eyelids or rectum. They may look like bruises but they don't go away.

Can AIDS Be Treated?

At this time there is no cure for AIDS, no treatment that will destroy the HIV and repair a damaged immune system. However, people with AIDS can be treated for specific infections and may lead active lives for long periods of time. Persons with AIDS need support and understanding like people with other life-threatening illnesses such as cancer or heart disease.

Is There a Blood Test for AIDS?

There is no single test for diagnosing AIDS. There is a test for detecting antibodies to HIV, the virus that causes AIDS. (Antibodies are substances produced in the blood to fight off a particular disease.) The test is very useful in AIDS research and for screening donated blood for signs of HIV infection.

A positive antibody test does not mean that a person has AIDS or will develop AIDS. It does mean the person has been infected with HIV. Persons with a positive antibody test should assume that they can infect their sexual partners and persons with whom they share needles.

Should I Get the Blood Test for the Antibody to the AIDS Virus?

There is no simple "Yes" or "No" answer to this question.

If you have not engaged in behaviors that would place you at risk for AIDS, there is no reason for you to take the test. If you have engaged in high-risk behaviors, then knowing your test results, along with knowing AIDS risk-reduction guidelines, might help you to prevent getting the virus or passing it on to someone else. Because an infected mother can pass the virus to her unborn infant, women at risk for AIDS should be tested before they consider becoming pregnant.

Most local health departments in North Carolina offer testing for the antibody to HIV. There are two reasons to go to your local health department if you are interested in the test. First, testing at local health departments is free and anonymous (you don't have to give your name). Second, counseling about the test and the meaning of the test results is very important. The staff at local health departments have been trained to give you the information and counseling you need to decide whether or not to be tested.

How Can I Protect Myself from AIDS?

If you or your partner has had sex with other persons since 1978, you may be at risk for AIDS. The more partners, the greater the risk. To reduce your chances of becoming infected with HIV:

- Abstinence or monogamy is safest.
- If you are sexually active, reduce your number of sexual partners.
- If you or your partner is at risk for AIDS or you are not sure of your partner's drug and sexual history, do not exchange body fluids during sex. Do not allow blood, semen or vaginal secretions to enter your body. Use latex condoms if you engage in vaginal intercourse, anal intercourse, or oral-genital sex. While condoms are not 100 percent effective, when used properly, they provide the best protection for people who are sexually active.
- Do not inject drugs. Never share needles or syringes.

In addition to these recommendations, persons who have engaged in high-risk behaviors should follow these guidelines:

- Do not donate blood, sperm, organs, or other body tissues.
- If you are a woman at risk for AIDS, take the antibody test before becoming pregnant.

(Your local health department or one of the organizations listed on page 148 can give you more information on AIDS.)

Information for Persons with a Positive HIV Antibody Test Result

What Does a Positive Test Result Mean?

It is very likely that you have been infected with HIV (the virus that can cause AIDS) and that the virus is in your body. It does **not** mean that you have AIDS now or that you will develop it in the future.

Current information suggests that over time, some persons will get AIDS. Some will develop milder symptoms of HIV infection and may or may not go on to develop AIDS. Others will remain healthy for at least eight to ten years. At this time we cannot predict which persons with a positive HIV test will develop AIDS. What is most important is that you can take steps which may protect your health.

What Can I Do to Decrease the Chance I'll Develop AIDS?

At this time there is no cure for HIV infection. But there are things you can do which may reduce your chances of developing AIDS.

When someone is infected with HIV, the virus can live in that person's blood for a long time without damaging the immune system. (The immune system is the body's defense against disease). AIDS occurs when HIV starts reproducing, attacking the immune system, and weakening it. This leaves

a person open to rare infections and diseases.

At this time it is not known what causes HIV to begin multiplying in someone who is infected. There is some evidence that this occurs when extra stress is placed on the immune system. This means you may be able to slow or prevent the virus from multiplying by avoiding stress to your immune system. Carefully consider these recommendations:

- 1 Exercise, eat a well-balanced diet, get plenty of rest, and reduce stress. These are basic practices that help everyone fight infection and stay healthy. They are especially important if you test positive for the HIV antibody.
- 2 Choose a health care provider you trust to help you make decisions about your health care. Tell your medical doctor about your test so he or she can evaluate your health and help you stay healthy. Discuss what changes in your mental and physical health you should look for.
- 3 Any infection will strain the immune system and may cause HIV to multiply. Talk to your doctor about a syphilis test. Avoid getting sexually transmitted diseases such as gonorrhea, syphilis, herpes, and hepatitis. If you are sexually active, reduce your number of sex partners and always use latex condoms if you engage in vaginal or anal intercourse or oral sex. Besides preventing sexually transmitted diseases, these precautions will protect you from further HIV infection and will prevent transmitting HIV to anyone else. (See the section "What About Sex?" for more information).
- 4 Do not share needles, syringes, or works. If drug users do this they can pass HIV and many other infections to one another. There is always some blood left in needles, syringes, and works even if you cannot see it. Using drugs stresses the immune system. This may increase your chances of developing AIDS, even if you do not share needles, syringes, or works. If you shoot drugs, get help to stop, and never share needles, syringes, or works. Ask your health care provider to refer you to a drug treatment program.
- 5 Do not use poppers (amyl and butylnitrites) or any other recreational drugs. Drugs weaken the immune system and HIV infected people who use them may be more likely to develop rare, life-threatening infections.
- 6 Have a tuberculosis (TB) skin test. Many people are infected with tuberculosis and never have symptoms of disease. However, persons who are infected with both HIV and TB are more likely to develop active tuberculosis. If your TB skin test is positive or you have recently been exposed to TB or you have a chronic cough, tell the physician or TB clinic nurse that you also tested positive for HIV antibody. He or she will then begin preventive drug treatment to decrease your chances of developing active tuberculosis.
- 7 Discuss being vaccinated for flu and pneumococcal pneumonia with your medical doctor. Vaccines to prevent these infections are recommended for persons with AIDS or symptoms of HIV infection. They may be offered to persons who have tested positive for HIV antibody as well.
- 8 Get some emotional support. One way to decrease stress is to talk about your feelings with someone who cares. There

are people in your community who will listen to your concerns. Mental health centers can provide counseling. AIDS service organizations have trained volunteers to talk with persons who are concerned about AIDS and HIV infection. Many have support groups where you can talk with others who are also infected with HIV. Ask your doctor or health department about the nearest mental health center and AIDS service organization.

How Do I Avoid Transmitting the Virus to Others?

Having a positive test means that you may infect others with the virus if you have sex without a condom or share needles, syringes, or works. It is important to follow these guidelines:

- 1 Do not donate or sell blood, plasma, platelets, or other blood products, sperm, ova, tissues, organs or breast milk.
- 2 When blood, semen and vaginal secretions are exchanged during sex, HIV can be transmitted to others. This includes having anal intercourse, vaginal intercourse, and oral sex. Use latex condoms or refrain from these activities. (See the section "What About Sex?" for more information).
- 3 Do not inject drugs; never share needles, syringes, or works. If you have a drug problem, get into a treatment program.
- 4 About one-third to one-half of all women infected with HIV who get pregnant pass the virus to their unborn babies. Therefore, a woman with a positive HIV antibody test (or a woman whose sexual or needle partner has a positive test) should not get pregnant.
- 5 Do not share personal items such as toothbrushes and razors; they may have tiny amounts of blood on them.
- 6 If you cut yourself and spill blood, wash the area where the blood has spilled with a fresh mixture of water and bleach (mix one part bleach to ten parts water and use a new mix every time).

Who Should I Tell About My Test Result?

Many people do not know the meaning of a positive antibody test and may not be understanding. You may want to tell only those people who need to know:

- Inform medical doctors, dentists, and others involved in your health care about your test results. Discuss with your health care provider whether your HIV test results will be placed in your medical record. Your medical records are kept confidential. However, if for some reason other people find out about your test results, you may have problems with insurance, jobs, or housing.
- North Carolina law requires that you tell future sex partners about your HIV infection.
- North Carolina law also requires that you tell persons you have had sex with or shared needles with in the past year. If you know when you became infected, then all partners since the date of infection should be told. Telling partners is important. They need to know that they may have been exposed to HIV so they can go to a medical doctor or the

health department for evaluation, counseling, and, if they wish, antibody testing.

Notifying partners may be difficult. If you want help, counselors from the State AIDS Control Program can notify your partners for you or provide you with information on how to do this. Your doctor or nurse can set up an appointment for you with an HIV counselor. They will also give you a form for listing your partners. If you want help in telling your partners you can take this form to your appointment with an HIV counselor or mail it to the AIDS Control Program. Be sure that your doctor or nurse talks with you about the different ways your partners can be told.

What Changes Should I Make in My Daily Activities?

Other than the suggestions listed above you do not need to change your daily life. In particular:

Contact with family and friends can be the same as it was before your HIV test. Touching, hugging, and casual kissing do not spread the virus; neither does sharing plates, eating utensils, sinks, or toilets.

Daily contact with other people at work or in the community may continue as it was.

What About Sex?

The surest way to avoid spreading the virus is to avoid sex and IV drugs. However, there are ways to have sex that should be safer for you and your partner. First, you should talk with your partner about your positive test. Then you both can decide whether or not to have sex and, if so, how to do so in the safest way. Second, in all sexual activity be very careful to avoid the exchange of blood, semen, and vaginal secretions because these are the fluids that can spread HIV infection.

If your partner is already infected, this does not mean that you do not have to worry about protecting each other. Exposing one another to more HIV (through sex without a condom or shared needles, syringes or works) may increase both your chances of developing AIDS. These activities can also spread germs that cause other diseases. These diseases can weaken your immune system and increase your chances of developing AIDS.

The safest sex practices are dry kissing, hugging, touching, body to body rubbing, and mutual masturbation on unbroken skin. Wet or french kissing cannot be considered 100% safe because small amounts of the virus have been found in saliva. So far, no one is known to have gotten AIDS from saliva.

Among the riskiest activities are unprotected anal and vaginal intercourse, so always use latex condoms if you have anal or vaginal sex. You should also use condoms if you have oral sex to avoid getting semen in the mouth.

While condoms are not 100% effective, they should prevent spread of the virus if they are used correctly and they

do not break. Use latex condoms; they are stronger than lambskins. Use plenty of lubricant on the condoms during intercourse to avoid damage to sensitive tissues. Be sure the lubricants are water-based. Oil-based lubricants (like petroleum jelly, grease, creams or lotions containing mineral oil) may weaken latex and cause the condom to tear. Your health care provider can give you information on how to use a condom correctly.

In addition, the spermicide nonoxonyl 9 has been shown to kill HIV in laboratory tests. When used with condoms, contraceptive jelly, cream or foam containing this spermicide may further reduce the risk of spreading HIV.

Points To Remember

- 1 A positive test does not mean you have AIDS or that you will develop AIDS.
- 2 Choose a medical doctor and get a full medical workup and regular checkups.
- 3 Take good care of yourself. Develop a healthy lifestyle.
- 4 Follow guidelines to avoid spreading the virus to others.
- 5 Get some emotional support. Talk to others. You are not alone. Help is available. □

How Do I Find Out More About AIDS?

For more information about HIV infection, contact your local health department or an AIDS service organization.

There are seven AIDS service organizations in North Carolina:

AIDS Task Force of Winston-Salem
919/723-5031

AIDS Resource Project of GROW
(Wilmington) 919/675-9222

Eastern Regional AIDS Support & Education
(Greenville)

The AIDS Service Project
(Durham) 919/286-7475

Metrolina AIDS Project
(Charlotte) 704/333-2437

Triad Health Project
(Greensboro) 919/275-1654

Western North Carolina AIDS Project
(Asheville) 704/255-5685

Public Health Service AIDS Hotline
1-800/342-AIDS

For information on drug treatment, contact your local mental health center, your local drug treatment center, or call:
1-800/662-HELP

AIDS: Recommendations and Policy Statements

Report B— Recommendations on Acquired Immunodeficiency Syndrome (AIDS)

Adopted by the North Carolina Medical Society House of Delegates, May 7, 1988

- 1 That the North Carolina Medical Society (NCMS) commit itself to educating physicians, other health care workers and the public about AIDS.
- 2 That the NCMS adopt the position that physicians should treat those AIDS patients they are capable of treating and convey this position to the membership and to the executive officers of other North Carolina health care associations, such as the Nurses Association, Hospital Association, Emergency Medical Services Workers Association, etc.
- 3 That the NCMS strongly support AIDS education in the schools.
- 4 That the NCMS make AIDS one of its top legislative priorities this next year and that it seek legislation that will (1) expand public funding for AIDS education and risk reduction programs; (2) expand community services and public benefits for AIDS victims; and (3) prevent discrimination of HIV-infected persons.
- 5 That the NCMS adopt as policy the 1987 American Medical Association (AMA) report YY on AIDS.
- 6 That the NCMS endorse the NC Division of Health Services' guidelines on the management of HIV-infected children in the schools and in day care centers and that this endorsement be conveyed to the presidents of the component medical societies and to the superintendents of the local school systems.
- 7 That the NCMS request the president of every component medical society to establish an AIDS task force for the purposes of: (1) establishing a speakers' bureau; (2) coordinating with other community agencies and health care providers; and (3) providing consultation services on AIDS prevention and infection control to the local school system.
- 8 That the NCMS urge every component medical society to have at least one program on AIDS for its members during the next year.
- 9 That the NCMS duplicate and make available to every component medical society copies of a slide lecture on sexually transmitted diseases and AIDS being produced by the Division of Health Services.
- 10 That the NCMS sponsor a media training workshop for component society task force members to help develop communication skills for working with the media and public.
- 11 That the NCMS sponsor or cosponsor a medical-legal workshop on AIDS.
- 12 That the NCMS provide sufficient resources and manpower to meet the urgent and rapidly growing requirements identified in this report.

STD and AIDS Committee Recommendations and Policy Statements

Adopted by the North Carolina Medical Society Executive Council, November 13, 1988

- 1 That the NCMS (North Carolina Medical Society) establish as its highest priority for acquired immunodeficiency syndrome (AIDS) legislation, enactment of anti-discrimination legislation to protect human immunodeficiency virus (HIV) -infected individuals since discrimination and fear of discrimination are the greatest barriers to controlling the spread of HIV.
- 2 That the NCMS seek legislation for across-the-board prohibitions of discrimination against HIV-infected individuals in housing, employment, insurance, transportation, and in organizations providing care (such as schools, hospitals, nursing homes, domiciliary care facilities, and day care facilities).
- 3 That the NCMS seek legislation, funding, and administrative actions to improve the financing of AIDS care and AIDS education/prevention. Both public and private payors should provide reimbursement for care delivered in outpatient, inpatient, nursing home, domiciliary and

home settings as well as for drugs and hospice services. Legislation should provide for the development of comprehensive community systems of care with a case management component.

Such legislation shall require that the Commissioner of Insurance develop a mechanism (such as an insurance pool) through private insurers to assure coverage for HIV-infected individuals who are financially able to purchase private insurance.

Such legislation shall also establish a funding system to provide for those HIV-infected individuals unable to purchase insurance. Paperwork and eligibility determination should be simplified and expedited for HIV-infected individuals.

4 That the NCMS file a friend-of-the-court brief on behalf of the plaintiff in the Burgess vs. Your House of Raleigh,

Inc., case involving the alleged termination of employment of a food service worker due to HIV infection.

5 That physicians encourage all appropriate patients undergoing invasive procedures to have an HIV test.

6 That the NCMS urge the Commission for Health Services to require persons with AIDS and HIV positive persons who are aware of their status to divulge it to appropriate health care providers.

7 That the NCMS support funding for additional personnel and resources in the Sexually Transmitted Diseases Control Branch of the North Carolina Division of Health Services to address the recent increase in sexually transmitted diseases in North Carolina, including making the NCMS's support for this funding known to the Governor's Advisory Budget Commission and others as appropriate. □

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Human Immunodeficiency Virus Infection

P. Samuel Pegram, M.D.

In the short seven years since the acquired immunodeficiency syndrome (AIDS) was first recognized, the disease has been documented in over 85,000 persons in the United States; even more disturbing is the belief that between one and two million additional people are infected with the causative agent, the human immunodeficiency virus (HIV), and that most of these individuals will experience progressive, time-dependent immunodeficiency and eventually meet the criteria for full-blown AIDS.¹

North Carolina has not been spared. As of September 27, 1988 there were 629 AIDS cases in North Carolina with a doubling time of 15 months. Mortality has been 55%. Ninety percent of these cases have been in males, most have had homosexuality/bisexuality (60%), intravenous drug use (18%), or both (6%) as risk factors for infection, and 53% have occurred in white, non-Hispanics, 45% in blacks. Counties reporting the most cases include Mecklenburg (98), Wake (84), Forsyth (39), Cumberland (37), Durham (37), and Guilford (31).

Spectrum of Infection

The spectrum of clinical manifestations and laboratory abnormalities attributable to HIV infection is a reflection of direct effects of the virus on the host (e.g., the "mononucleosis" of acute infection or chronic neurologic syndromes) and/or indirect effects of the virus on the immune system (e.g., opportunistic infections and neoplasms complicating HIV-induced immunodeficiency). The spectrum of HIV infection is a dynamic continuum in which the patient progresses with the passage of time from one stage to the next. Clinical stages

are paralleled by characteristic, and generally predictable, serologic (antigen and antibody), virologic, and immunologic changes.

HIV infection begins either without symptoms or with the appearance after an incubation period of two to four weeks (range five days to months) of an acute illness characterized by a mononucleosis-like syndrome, a variety of neurologic manifestations (notably aseptic meningitis), an erythematous, maculopapular rash (usually facial or truncal), mild hepatitis, or lymphadenopathy (often in the second week of illness).² These manifestations may occur alone or in combination, and all except lymphadenopathy characteristically resolve within two to six weeks. An asymptomatic period of variable duration (typically five to 10 years) ensues, accompanied by a time-dependent decrease in the number and function of the primary infected cell (T_4 , CD_4 , or helper lymphocyte) and resultant progressive immunodeficiency. In general, before an individual fulfills the criteria for AIDS a number of pre-AIDS syndromes can be recognized which represent clinical and laboratory manifestations of underlying advancing immunodeficiency; these include oral candidiasis, oral hairy leukoplakia, immune thrombocytopenia purpura (ITP), herpes zoster, neurologic abnormalities, anemia and CD_4 lymphopenia.³ The preterminal manifestation of HIV infection is AIDS and is characterized by the presence of specific opportunistic infections, neoplasms (especially Kaposi's sarcoma), HIV wasting syndrome, or HIV encephalopathy.⁴ The median time after infection with HIV to the diagnosis of AIDS is five to 10 years (less for some populations such as infected newborns and perhaps more for others); within three years from the diagnosis of AIDS essentially all patients die.^{5,6}

Diagnosis

The evaluation of HIV infection involves first establishing the presence of the virus and then staging the infected patient using clinical and laboratory parameters.

From Division of Infectious Diseases and Immunology, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem 27103.

HIV Testing

HIV infection can be established directly by detecting the virus or one of its components, or indirectly by measuring HIV-specific antibodies. Retroviral culturing is difficult, time consuming, expensive, requires a biocontainment facility, and is insensitive in that the virus may not be consistently isolated from persons with documented infections.⁷ Recently two tests have become available for directly measuring HIV components: HIV antigen determination by EIA and HIV DNA by PCR.

HIV Antigen Determination

HIV antigenemia is typically biphasic, occurring early in infection, prior to antibody seropositivity, and followed by a disappearance and then reappearance late in the course of infection.⁸ The reappearance of HIV antigenemia serves as an indicator of increased viral biologic activity and as a prognostic marker for the development of AIDS. Antigen detection (usually measuring p24 core protein by enzyme immunoassay) might be useful in the early diagnosis of HIV infection (primary infection before antibodies are present), in the prediction of disease progression in asymptomatic patients, in monitoring viral activity and response to therapy in patients receiving treatment (decrease of HIV antigen during zidovudine therapy), and in screening infants of antibody positive mothers.^{9,10}

HIV DNA Identification

The technology of polymerase chain reaction (PCR) can be used to detect very small amounts of HIV proviral DNA in peripheral blood mononuclear cells by amplifying HIV-specific DNA sequences.¹¹ This test can detect infection very early (before antigen and antibody appear) but, unlike HIV antigen, remains positive throughout the patient's infection. Its primary uses will likely be in early detection of infection and in determining the HIV status of infants born to infected mothers. HIV DNA by PCR is commercially available but expensive.

HIV Antibody Testing

The diagnosis of HIV infection is standardly made by detecting antibodies against HIV.¹² Screening for HIV-specific antibodies is first performed using an enzyme-linked immunoassay (EIA or ELISA) which if positive is repeated. "Repeatedly reactive" results are validated using more specific confirmatory tests of which the Western blot remains the gold standard. A positive EIA and Western blot indicate HIV infection but should not be equated with AIDS since the latter is a clinical diagnosis. A positive EIA but a negative

Western blot represents a false positive result, but a positive EIA and an indeterminate Western blot must be resolved by repeating the Western blot every three to six weeks, over a period of months.

HIV Staging

Once an individual is found to be HIV positive, staging of the infection can be accomplished after completion of appropriate history (HIV oriented for risk factors and symptoms), physical examination (concentrated on special signs such as oral hairy leukoplakia), and laboratory studies. The Centers for Disease Control (CDC) classification (table 1) is now generally preferred over previous labelling of asymptomatic carrier, persistent generalized lymphadenopathy (PGL), AIDS-related complex or condition (ARC), or AIDS.¹³ Patients meeting the criteria for AIDS, criteria which have changed with time and differ for children and adults, should be reported to local health departments; patients with other manifestations of HIV infection not meeting the criteria for AIDS are not reportable in North Carolina, but physicians are legally required to give all HIV-infected persons a partner notification form (available from the North Carolina Department of Human Resources Division of Health Services) and to notify the Division of Health Services if a spouse is identified.

A baseline evaluation of all HIV-infected patients, whether asymptomatic or symptomatic, is mandatory. All asymptomatic HIV-positive individuals must be given a skin test with five tuberculin units of purified protein derivative

Table 1
The CDC Classification System of HIV Infection

Group I	Acute Infection
Group II	Asymptomatic infection*
Group III	Persistent generalized lymphadenopathy*
Group IV	Other disease
Subgroup A	Constitutional disease
Subgroup B	Neurologic disease
Subgroup C	Secondary infectious
Category C-1	Specified secondary infectious diseases listed in the CDC surveillance definition for AIDS+
Category C-2	Other specified secondary infectious diseases
Subgroup D	Secondary cancers+
Subgroup E	Other conditions

* Patients in Groups II and III may be subclassified on the basis of a laboratory evaluation.
+ Includes those patients whose clinical presentation fulfills the definition of the acquired immunodeficiency syndrome (AIDS) used by Centers for Disease Control (CDC) for national reporting.

(IPPD legally required in North Carolina), and all symptomatic HIV-infected patients should receive both a skin test and a screening chest x-ray because of the frequent (10% to 40%) occurrence of anergy in advanced HIV infection.¹⁴

A complete blood count may reveal anemia or leukopenia (both associated with progression of HIV disease), and a SMAC may demonstrate a number of abnormalities, including: hypergammaglobulinemia (nonspecific polyclonal gammopathy not requiring further work-up); hypoalbuminemia; hypocholesterolemia (worsens with advancing disease); elevated AST and ALT (nonspecific if less than two times normal); elevated alkaline phosphatase (high in hepatic lymphoma, mycobacterial disease, and sclerosing cholangitis); or an elevated LDH (reflecting pulmonary pathology, especially pneumocystosis, or non-Hodgkin's lymphoma).¹⁵ An elevated erythrocyte sedimentation rate or beta-2 microglobulin are also poor prognostic findings. All patients who are at risk for sexually transmitted diseases should be screened for syphilis, and all positive individuals considered candidates for cerebrospinal fluid examination because of an associated acceleration of neurosyphilis in HIV-infected patients and documentation of treatment failures with standard treatment regimens.¹⁶ At risk patients should also be screened for treatable parasitic infections (examination of stool for ova and parasites). Platelet counts should be obtained with any history or clinical evidence of a bleeding problem to rule out ITP. Since toxoplasmic encephalitis is a major central nervous system complication in patients with AIDS and is the most frequent cause of focal intracerebral lesions, all HIV-infected patients should have their sera tested for toxoplasma-specific IgG antibody.¹⁷ A positive test is not helpful, but a negative test is useful in essentially ruling out toxoplasmosis as the cause of a solitary CNS mass lesion in a patient with AIDS. Any HIV-infected patient with a headache and fever must be evaluated for cryptococcal disease since essentially all of these patients will have a positive serum cryptococcal antigen.¹⁸ FUOs are commonly associated with atypical mycobacteriosis or lymphoma. A baseline eye examination and serial neurologic examinations are important for all patients.

Immunologic abnormalities have been used to stage both asymptomatic and symptomatic HIV-seropositive patients.¹⁹ The progressive depletion of the CD₄ subset of lymphocytes is the most accurate predictor of the onset of the clinical manifestations of HIV disease and ultimately of the risk of progression to AIDS. Patients with <200 CD₄ lymphocytes are especially at risk for opportunistic infection and other complications of severe immunodeficiency.

Treatment

Approaches to the treatment of HIV infection have involved attempts to (1) treat complications such as opportunistic infections and neoplasms, (2) reestablish immune competence with various immunomodulators, and (3) control or

destroy HIV itself.²⁰ The treatment of various complications of HIV infections cannot be covered in this brief review, and the reader is referred to recent articles for updating.²¹ Unfortunately, although there are a large number of single and combination specific anti-HIV drug regimens being evaluated,²² only one agent, zidovudine (AZT or Retrovir[®]), is presently available commercially.

Zidovudine inhibits the replication of HIV by interfering with viral RNA dependent DNA polymerase (reverse transcriptase).²³ It is rapidly absorbed from the gastrointestinal tract after oral dosing and attains cerebrospinal fluid levels averaging 50% of the plasma levels. In early clinical trials zidovudine was found to prolong survival and reduce mortality in patients with AIDS and is approved for patients with AIDS and severe, symptomatic ARC (<200 CD₄ lymphocytes per cu mm). Zidovudine is extremely expensive and is taken at a full dose of 200 mg five to six times daily. It is potentially myelotoxic and should not be given with other myelosuppressants or drugs (e.g., acetaminophen) which are glucuronated in the liver and which when given chronically may prolong zidovudine's half-life, resulting in increased toxicity.²⁴ Although some patients experience nausea, headache, insomnia, and mild confusion with zidovudine, the major adverse effects are anemia (often macrocytic and in up to 30% severe enough to result in transfusion dependency if the drug is not decreased in dose or discontinued), granulocytopenia (rarely associated with septic complications), and infrequently thrombocytopenia. The hematologic side effects are more common in advanced HIV disease, particularly with preexisting cytopenias and severe CD₄ lymphocyte depletion. Studies are underway to determine if zidovudine is effective and less toxic in patients with early HIV infection.

Prevention and Prophylaxis

Human immunodeficiency virus is transmitted through sexual contact, through parenteral exposure to blood and blood products and from mother to child during the perinatal period.²⁵ A great deal has been published about prevention of HIV transmission (e.g., "safe sex," avoiding sharing of intravenous needles, screening blood, blood products, and donated organs/tissues, universal precautions for health care workers, etc.). These will not be reviewed here.²⁶ Recently, attention has been focused on various prophylactic maneuvers to prevent the HIV-infected patient from complications of immunodeficiency. Because *Pneumocystis carinii* pneumonia eventually occurs in over 80% of AIDS patients and is one of the most common causes of death, various prophylactic regimens have been and are being studied.²⁷ Trimethoprim/sulfamethoxazole (two double-strength tablets twice daily for two to seven days per week) or aerosolized pentamidine (300 mg every four weeks) are currently popular for all patients who have had documented pneumocystosis and as pre-pneumocystosis prophylaxis for patients with

advancing immunodeficiency (<300 CD₄ lymphocytes per cu mm). Sulfonamide-containing regimens are poorly tolerated by HIV-infected patients, and the long-term toxicity of aerosolized pentamidine on the lung is not known.

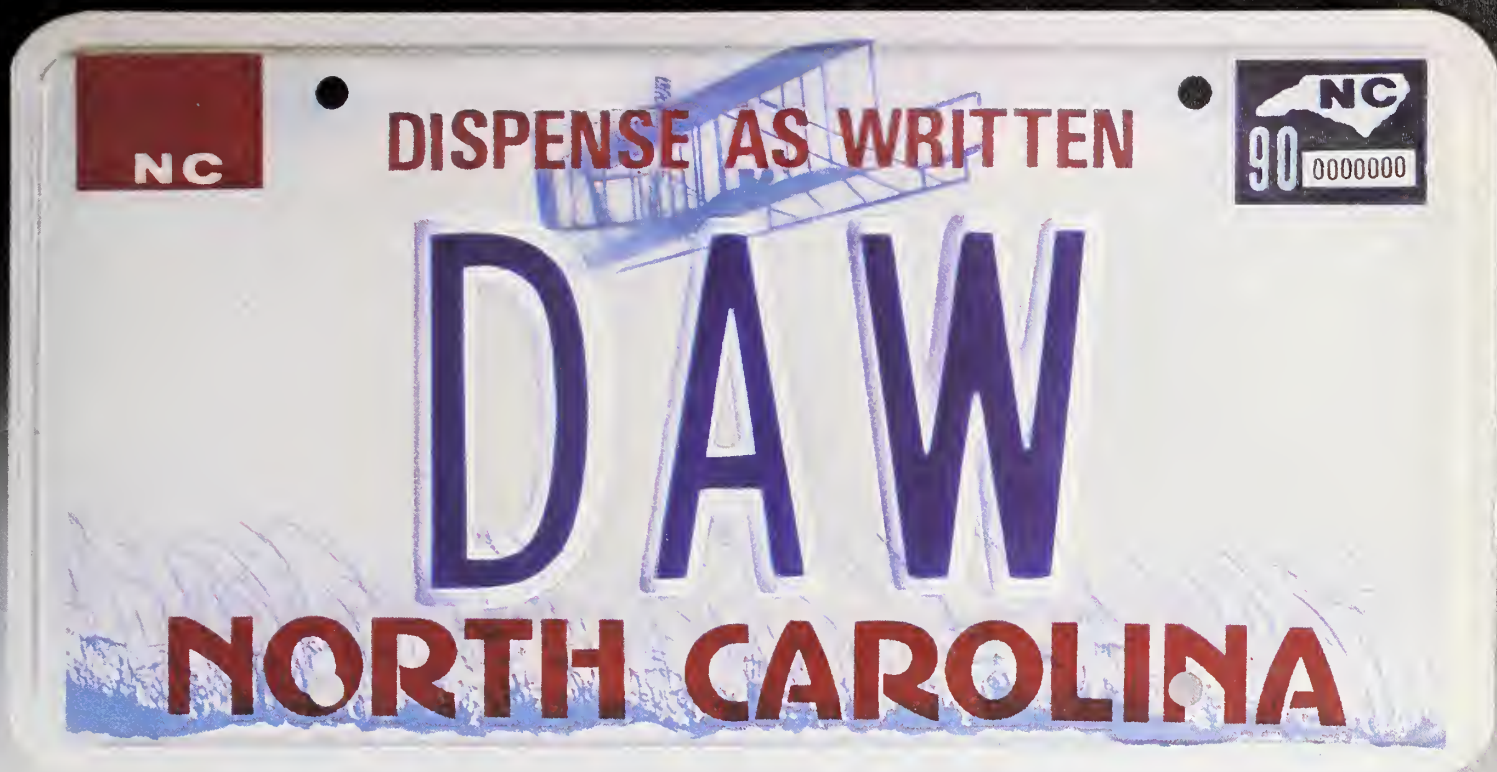
Although HIV infection has a negative impact on primary response to hepatitis B vaccine, the risk for an HIV-positive patient of becoming an HBV carrier after infection is approximately 20% (versus 6% without HIV infection).²⁸ Patients at risk for hepatitis B virus infection, such as gay men and intravenous drug users, should be screened serologically and offered vaccination if susceptible, preferably prior to HIV infection. Pneumococcal and annual influenza vaccines should be administered as early as possible in HIV infection; as immunodeficiency progresses the response to any immunization significantly decreases.²⁹ It may be appropriate to administer pneumococcal (and possibly meningococcal and *Haemophilus influenzae*) vaccine to patients with ITP; this complication often occurs early in HIV infection, rarely is associated with major bleeding problems, and is poorly responsive to therapeutic maneuvers short of splenectomy.

Conclusion

The HIV epidemic will continue to expand in the near future without a cure and with a desperate need for physicians and others to provide skilled care for afflicted patients. Although our teaching institutions have cared for the vast majority of these patients and will continue to be intensely involved in clinical and research aspects of HIV infection, there is a growing need and necessity for adequate care at the local inpatient and outpatient level. Most practicing physicians and hospitals in North Carolina should be able to provide baseline evaluation and treatment of many HIV-related problems but have the full support of referring institutions for more complicated conditions; conversely, patients with the full spectrum of HIV infection will be needed to participate in a growing number of medical center based research studies. Cooperation and understanding throughout the medical community will be required to adequately cope with the problem and provide optimal medical care to patients.

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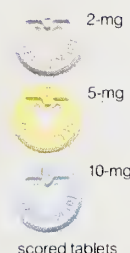
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Neurosyphilis— Forgotten but Not Gone

David Bierman, M.D., Roy J. Mathew, M.D., Marvin Rozear, M.D., and Jack Flyer, M.D.

The incidence of primary syphilis in the United States has increased in recent years, related in part to more permissive sexual practices. Syphilis may involve the central nervous system (CNS) at almost any stage of the disease up to decades after the primary infection.

Symptomatic neurosyphilis has been shown to develop in approximately 20% of untreated asymptomatic patients within a 10-year period. The diagnosis presents special challenges to today's clinician for several reasons: (1) syphilis is not a common disease and as such is not as familiar to physicians as it was in the pre-antibiotic era; (2) presentations of the disease—already known as “the great imitator”—have become even more variable with atypical forms arising as a result of inadvertent partial antibiotic treatment for other illnesses; (3) Typical screening measures helpful in detecting asymptomatic disease have become less routine as a result of cost-containment measures, at a time when primary syphilis is increasing.

Familiar forms of late symptomatic neurosyphilis include tabes dorsalis, meningovascular syphilis, and optic atrophy, but general paresis of the insane (GPI) is the form most likely to present with psychiatric manifestations. Typically, patients present with subacute, chronic or exacerbating-remitting disturbances of personality, affect, sensorium and cognition. On mental status examination one may find emotional lability, irritability, depression, mania, decreased motivation, hallucinations, delusions, illusions, disorientation, impaired memory and ability to calculate, poor judgment and lack of insight. Thus, it is apparent that neurosyphilis can present as virtually any psychiatric disorder and is difficult, if not impossible, to distinguish from other dementias. In a study of 91 patients with neurosyphilis, 20% presented with dementia, and 27% with depression.

Because of increased utilization of community mental health clinics, it is likely that the diagnosis of neurosyphilis

will be made more frequently on an outpatient basis. It is important that clinicians be made more aware of the psychiatric presentations of GPI so that appropriate physical and laboratory examinations can be performed when this diagnosis is suspected; since cost-containment concerns discourage the use of inexpensive serologic testing on a routine basis, the clinician's threshold of suspecting syphilis and ordering appropriate testing must be extremely low.

The following case history illustrates some of the clinical findings commonly presenting, and some of the difficulties frequently encountered in treatment.

Case Report

Mrs. K., a 59-year-old black female, was admitted to the psychiatric service on commitment after she threatened her son with a knife. Her family reported she had begun to disregard her personal appearance and hygiene nine months before. She acted inappropriately and with poor judgment; on one occasion she wore a towel to answer the door.

She became increasingly suspicious and accused others of stealing her money. She misplaced her keys, and lost \$1,800 in cash. The family confiscated all seven sets of car keys she had made to prevent her from driving. Mood lability was a distinctive feature with rapid escalation over trivial events. Although these changes appeared in stepwise fashion, the most distinct change occurred three to four weeks prior to admission. Two weeks prior to admission, she was fired from her job as a domestic.

Past medical history was negative; in particular there was no personal history of drug or alcohol abuse, and no personal or family history of psychiatric disease.

Physical examination revealed a well developed black female with blood pressure 170/104, otherwise normal vital signs. She appeared close to her stated age, with fair personal hygiene. Pupils were symmetrically constricted but reactive. She had mild symmetrical distal sensory impairment and mild diffuse weakness and impairment of manual dexterity.

Mental status examination showed her to be neatly dressed, initially guarded and hostile, but later cooperative. She had a full affective range with labile mood and increased psychomotor activity. Speech was rapid but not pressured. She felt persecuted and "kidnapped" but otherwise showed no evidence of thought disorder or perceptual distortion. She was disoriented to month and year, misspelled "world" backwards, recalled one out of three objects at five minutes, and only five digits forward and three backward. Serial 7-subtraction was: "100, 95, 98." She strongly denied the possibility of a change in personality or that she had an illness that required treatment even when told that laboratory tests showed need for that treatment.

Routine evaluations of blood and urine, routine chest radiographs and thyroid function tests were unremarkable. Serum Venereal Disease Research Lab (VDRL) titer was 1:1024; Fluorescent Treponemal Antigen-Absorption (FTA-ABS) was positive. Cerebrospinal fluid (CSF) was clear with 51 nucleated cells (95% mononuclear), protein 156 mg% and glucose 79 mg%. CSF VDRL titer was 1:32.

Psychological testing revealed verbal, performance and full scale IQ scores of 65, 62, and 61, respectively, considerably lower than expected for this patient with two years of college education. The oral form of the Minnesota Multiphasic Personality Inventory, the Mini-Mult, did not show a random pattern or evidence of a thought disorder; rather, evidence of a severe, diffuse dementing process. An aphasia screening test demonstrated consistent anomia, spelling dyspraxia, constructional apraxia, dyslexia, dyscalculia, and articulation disturbances.

When Mrs. K. arrived on the unit, she would eat only food given to her by another patient because "it was fixed to hurt me." She wore a heavy coat about for several days and told staff that her doctors had said she could go home, and to prepare for her discharge. She initially refused all procedures, but after several days she became more tractable when told these were necessary prior to discharge. She pulled out her IV line, often several times a day. At times, she was pleasant and cooperative, even euphoric. At times, she was disoriented to time and place. Once she left her room without a skirt; when informed of this, she became quite embarrassed. Her bizarre behavior, suspicions and agitation were fairly well controlled with low dose neuroleptic medication (Mellaril concentrate, 25 mg QID).

She was treated with Penicillin G, three million units intravenously every six hours for 10 days, followed by intramuscular Benzathine Penicillin, 2.4 million units weekly for three weeks. Follow-up will include repeat CSF evaluation and serial serum VDRL titers at two, four, and six months, to observe for a four-fold decrease in titers.

Discussion

This case illustrates the importance of obtaining a clear history from a relative. Because of the patient's lack of insight, she was not aware of her early cognitive deficits. They were recognized by her family and confirmed by the mental status examination. Neurosyphilis has protean neurologic and psychiatric manifestations, one of them specific. The diagnosis can be suspected on clinical grounds, but can be made definite only with appropriate serologic and CSF examinations. These tests are not obtained on a routine screening basis now, but only on the orders of a physician.

This case is presented to bring the problem to the attention of physicians, to enhance awareness of the manifestations of neurosyphilis, so that diagnosis and treatment can occur earlier. Untreated neurosyphilis leads to irreversible structural and behavioral changes, with permanent disability. □

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Kaposi's Sarcoma



Right: typical appearance and location of the dull red plaques of "classical" Kaposi's Sarcoma (on the foot of an elderly man). Left: vascular tumor of Kaposi's Sarcoma in a patient with AIDS.



Moritz Kaposi was born to indigent parents, Salamon and Rosa Kohn, in the small town of Kaposavar, Hungary in 1837. Despite his impoverished circumstances, he excelled in his studies and received his medical degree in 1861 from the University of Vienna. He completed training in surgery as well as obstetrics and gynecology before settling on a specialty. While in Vienna, Kaposi met Ferdinand Hebra, the founder of the Viennese School of Dermatology and the preeminent dermatologist of his time. Under Hebra's influence Kaposi was drawn to dermatology as a lifelong career. He strengthened his ties with his mentor by marrying Hebra's daughter in 1869. As a dowry, Hebra reportedly transferred to Kaposi the care of six of Hebra's wealthiest patients with intractable psoriasis.

In addition to career change and marriage, Kaposi also undertook a name change in 1870. He had used his given surname of Kohn up until this time, but for several reasons applied to change his name to Kaposi. There were five other physicians at the University with the same surname of Kohn, including one with the same first name of Moritz. Because Kohn was such a common name in Vienna, Kaposi was concerned he would be mistaken for others and did not want his published scientific observations attributed to other physicians. He was also planning to open a private practice of dermatology in Vienna and wanted a more easily recognizable name. He chose the name Kaposi to honor his native village of Kaposavar.

Hebra and Kaposi collaborated on a series of articles and textbooks over several years until Hebra's death in 1881. After his father-in-law's death Kaposi succeeded to the chair of the Department of Dermatology in Vienna and transformed the already famous school into one of world renown. Patients and physicians alike came from many nations to benefit from his clinical expertise. In addition he advanced the specialty of dermatology by organizing and participating in the first international dermatologic conferences.

The intense focus on AIDS in recent years has made Kaposi's name famous because it is attached to the sarcoma associated with this disease. In fact it was the increased

incidence of this rare sarcoma in young homosexual men that led to the identification of the syndrome now known as AIDS. Moritz Kaposi first described this "idiopathic multiple pigmented sarcoma of the skin" in 1872. Unlike the aggressive tumor form seen in AIDS patients, the sarcomas Kaposi saw ran an indolent course, remaining localized to the lower extremities of elderly men, mostly of Jewish or Italian descent. Although Kaposi's contribution to this description of this disease is well known, most physicians are less familiar with Kaposi's other equally significant achievements.

Kaposi contributed to the understanding of one other disease which he described and which was subsequently named for him, Kaposi's varicelliform eruption. Of interest, it (like Kaposi's sarcoma in AIDS) is found in patients with disordered immune function. In its classic presentation, an infant with atopic dermatitis contracts a primary herpes simplex infection (eczema herpeticum) or is inoculated for smallpox with vaccinia virus (eczema vaccinatum). Umbilicated vesicles and erosions suddenly appear and rapidly spread over the body. This dramatic event has serious complications including fever, adenopathy, and rarely death.

Kaposi also characterized xeroderma pigmentosa. We now know that this autosomal recessive disease results because cells are unable to repair DNA damage from ultraviolet radiation. Although he did not know the mechanisms, by observing the clinical changes in these young patients' skin—angiomas, nevi, atrophy, pigment changes, and skin cancers—Kaposi was the first to recognize the effects of photo-aging and photoinjury.

Kaposi remained chairman at Vienna until his death in 1902. His astute observations and intellectual curiosity led his department to a position of unequalled excellence. Though Kaposi died over eighty years ago, the advent of the AIDS epidemic has brought new relevance to the cutaneous sarcoma that bears his name and gives us reason to recall his accurate descriptions of many skin diseases, descriptions that remain unsurpassed even today.

- Susan C. Carson, Josephine A. Evans, and David Kaplan, M.D.
Duke University Medical Center, Durham 27710

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Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

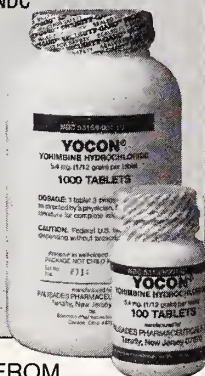
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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BRIEF SUMMARY

CONTRAINDICATIONS

There are no known contraindications to the use of sucralfate.

PRECAUTIONS

Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that simultaneous administration of CARAFATE (sucralfate) with tetracycline, phenytoin, digoxin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The clinical significance of these animal studies is yet to be defined. However, because of the potential of CARAFATE to alter the absorption of some drugs from the gastrointestinal tract, the separate administration of CARAFATE from that of other agents should be considered when alterations in bioavailability are felt to be critical for concomitantly administered drugs.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Chronic oral toxicity studies of 24 months' duration were conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). There was no evidence of drug-related tumorigenicity. A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies were not conducted.

Pregnancy: Teratogenic effects. Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients treated with sucralfate, adverse effects were reported in 121 (4.7%).

Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

OVERDOSAGE

There is no experience in humans with overdosage. Acute oral toxicity studies in animals, however, using doses up to 12 gm/kg body weight, could not find a lethal dose. Risks associated with overdosage should, therefore, be minimal.

DOSAGE AND ADMINISTRATION

The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

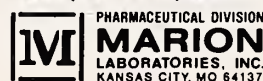
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Reference:

1. Eliakim R, Ophir M, Rachmilewitz D: *J Clin Gastroenterol* 1987;9(4):395-399.

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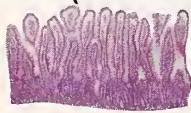



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Viral Hepatitis

An Important Sexually Transmitted Disease

Alan C. Street, M.B.B.S., F.R.A.C.P.

Despite an ever-improving understanding of the viruses that cause hepatitis, viral hepatitis itself is as common today as it was 10 years ago. This unsatisfactory situation can be attributed almost solely to a continuing increase in the reported incidence of hepatitis B virus (HBV) infections. When one considers that sexual spread of HBV is believed to be as important as parenteral transmission, it is clear why this infection warrants inclusion in a discussion of sexually transmitted diseases. Furthermore, the other two causes of viral hepatitis—hepatitis A virus (HAV) and non-A non-B (NANB) hepatitis—can also be spread sexually, although they are usually transmitted by the fecal-oral and parenteral routes, respectively.

This article will focus on the epidemiology, clinical features, diagnosis and prevention of viral hepatitis. Hepatitis B will be considered in most detail because it is the major sexually transmitted hepatitis virus, but HAV and NANB will also be discussed.

Epidemiology

Hepatitis B

In 1983, HBV replaced HAV as the commonest reported cause of hepatitis in the United States. The incidence of HBV in the U.S. has risen from 8.4 per 100,000 population in 1980 to 11.5 per 100,000 in 1985. In North Carolina the reported incidence in 1985 was 9.6 per 100,000 population, representing a total of 601 cases.

Sexual transmission of HBV is particularly common among homosexual males. Markers of HBV infection—HB surface antigen (HBsAg) or antibody to either the surface

antigen (anti-HBs) or core antigen (anti-HBc)—are present in up to 60% of this group of individuals, in contrast to 5% of the general population. Interestingly, recent evidence suggests that HBV is becoming less common among homosexuals, indicating a modification of high-risk sexual behavior to prevent human immunodeficiency virus transmission. Heterosexual spread of HBV also occurs commonly, as witnessed by the fact that 20% of heterosexual partners of acute HBV patients and 30% of partners of chronic HBsAg carriers will also be positive for HBV markers.

Hepatitis A

The reported incidence of HAV has been slowly declining over the past 10 years. Outbreaks of HAV, and HAV seropositivity rates higher than in control groups, have been described in homosexual males. Transmission of the virus is presumably facilitated by specific sexual practices such as oral-anal sex.

Non-A Non-B Hepatitis

The incidence of NANB has been slowly increasing both nationwide and in North Carolina, but it still remains a relatively rare cause of hepatitis. The fact that NANB is uncommon in male homosexuals suggests that sexual transmission of this form of hepatitis occurs infrequently. Of great interest is the recently announced discovery of an NANB agent. Should this finding be verified, it will lead to a much better understanding of the epidemiology of this disease, including the potential importance of sexual transmission.

Clinical Features

In the individual patient with acute hepatitis, it is not usually possible to distinguish one form of viral hepatitis from another, but sometimes certain clinical features are present that may indicate a specific viral cause.

The onset of jaundice is preceded by fever, malaise, nausea and abdominal pain. This prodromal or pre-icteric phase can be particularly prominent in HAV, but is usually less dramatic with NANB. During this phase, rash and arthralgia (evidence of immune complex deposition) occur in 10% to 20% of patients with acute HBV and in a lesser proportion of NANB cases. Physical examination in an uncomplicated case of acute viral hepatitis reveals icteric sclerae, mild right upper quadrant tenderness, hepatomegaly and sometimes splenomegaly.

The frequency and severity of complications vary with the different forms of hepatitis. Fulminant hepatitis is very rarely seen with NANB or HAV but complicates approximately 1% of adult HBV cases. Five to ten percent of patients with acute HBV will become long-term HBsAg carriers, a proportion of whom will subsequently develop chronic hepatitis, cirrhosis and possibly hepatocellular carcinoma. Studies of post-transfusion hepatitis indicate that up to 60% of patients with NANB may develop chronic hepatitis. Hepatitis A is never complicated by the development of chronic hepatitis.

Diagnosis

The diagnosis of viral hepatitis is suggested by the presence of compatible clinical features (see above) and by biochemical evidence of hepatocellular damage. Specific serological tests are required to identify the causative agent.

Liver Function Tests (LFTs)

In a jaundiced patient with acute viral hepatitis, transaminase levels are almost always more than 10 times the upper limit of normal, and the alanine aminotransferase (ALT) level is higher than the aspartate transferase (AST) level. Bilirubin levels are moderately increased, while alkaline phosphatase levels are rarely more than two to three times the upper limit of normal.

Specific Serology

Hepatitis B: HBsAg is present in the serum of 90% to 95% of acute HBV cases. Measurement of IgM antibodies to anti-HBc (anti-HBc IgM) will detect those 5% to 10% of patients with a negative HBsAg and can help distinguish the patient with a true acute HB infection from a chronic HBsAg carrier with another superimposed variety of hepatitis. The presence of anti-HBs indicates recovery from, and immunity to, hepatitis B. Long-term HBsAg carriers will be positive for anti-HBc but negative for anti-HBs.

Hepatitis A: The presence of IgM antibodies to hepatitis A (anti-HAV IgM) or the demonstration of a fourfold or greater rise in anti-HAV IgG titers are reliably diagnostic of acute HAV. Viral culture or viral antigen detection from

stool remains a research tool.

NANB Hepatitis: A diagnosis of NANB remains one of exclusion at present.

Differential Diagnosis

The diagnosis of acute viral hepatitis is usually straightforward, but in the sexually active population several other conditions may enter into the differential diagnosis: primary cytomegalovirus and Epstein-Barr virus infections; secondary syphilis; toxic hepatitis (due to drugs or alcohol); and surgical causes.

A careful history, thorough physical examination, characteristic LFT patterns and specific serology should enable these conditions to be distinguished from one another. It is worth remembering that fever and jaundice rarely occur together in viral hepatitis, so a jaundiced, febrile patient must never be assumed to have viral hepatitis until other possibilities, particularly surgical causes, have been thoroughly excluded.

Prevention

Because there is as yet no specific anti-viral therapy for any of the forms of viral hepatitis, preventive measures are of great importance in dealing with these infections. Adoption of safe sexual practices should lead to a reduction in all forms of sexually transmitted hepatitis.

Hepatitis B

Theoretically, sexual transmission of HBV could be substantially reduced now that a safe, effective vaccine is available. The vaccine should be offered to homosexual males, to heterosexuals with multiple partners and to spouses or regular sexual partners of chronic HBsAg carriers. To prevent unnecessary vaccination, prior screening for the presence of HBV markers may be worthwhile in these groups. The duration of protection offered by the vaccine is unknown, but probably extends beyond five years. Administration of HBV immune globulin (HBIG) 0.06 ml/kg intramuscularly is recommended for sexual partners of those with recently diagnosed acute HBV and, depending upon the circumstances of the relationship, may be followed up by a vaccine course. A recombinant-derived vaccine has recently become available, but is no cheaper and no more effective than the current plasma-derived vaccine.

Hepatitis A

Immune serum globulin (ISG) 0.02 ml/kg intramuscularly is recommended for sexual contacts of patients with acute HAV. The development of an HAV vaccine is an active area of research at present, but as yet no commercially available vaccine exists.

NANB Hepatitis

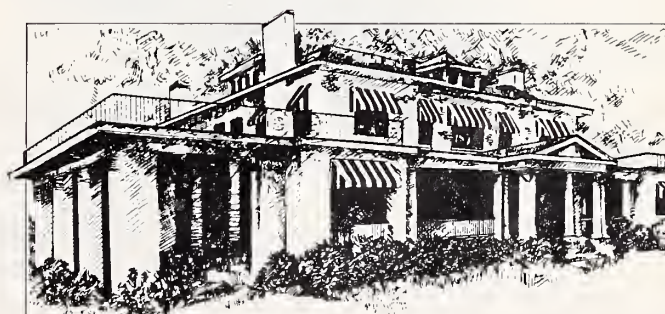
ISG may be effective in reducing parenteral transmission of NANB but its place in the prevention of sexually acquired NANB is unknown.

Summary

Hepatitis B is an important sexually transmitted disease. The availability of a safe and effective vaccine has unfortunately had little impact on controlling this disease nationwide or in North Carolina, chiefly because target groups have proven difficult to reach. Both HAV and NANB can be transmitted sexually, but are much less important than HBV. □

Recommended Reading

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- 2 Immunization Practices Advisory Committee. Recommendations for protection against viral hepatitis. MMWR 1985;34:313-35.
- 3 Immunization Practices Advisory Committee. Update on hepatitis B prevention. MMWR 1987;36:353-60.



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Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in

moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.

- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] and toxic epidermal necrolysis or the above skin manifestations accompanied by arthritis/arthralgia, and frequently, fever): 1.5%, usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

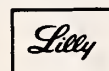
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest[®] tablets but not with Tes-Tape[®] (glucose enzymatic test strip, Lilly).

[061088L]

Additional information available from
Eli Lilly and Company, Indianapolis, Indiana 46285



Eli Lilly Industries, Inc
Carolina, Puerto Rico 00630

The Role of Chemotherapy for Node Negative Breast Cancer

M. Robert Cooper, M.D.

The May 16, 1988 Clinical Alert from the National Cancer Institute (NCI) stimulated considerable discussion among those of us involved in the treatment of breast cancer. The NCI suggested that adjuvant hormonal or cytotoxic chemotherapy can have a potential impact on the natural history of node negative breast cancer patients.

Three studies carried out by the Clinical Trials Cooperative Group in North America were listed in the report. The National Surgical Adjuvant Breast and Bowel Project (NSABP) Study (Protocol B-13) examined the worth of postoperative sequential methotrexate and 5-FU followed by leucovorin in a randomized clinical trial in primary breast cancer patients. These patients had pathological negative axillary nodes and were ER negative (less than 10 femtomoles/mg). The second study, NSABP B-14, reported on 2,644 patients studied in a randomized double-blind manner. These patients were also pathologically node negative but had positive hormonal receptor status. They received either tamoxifen 10 mg/m² for five years or a placebo-control similarly administered. The third group reported by the NCI alert was initiated by the Eastern Cooperative Oncology Group (ECOG) in 1980 and later joined by the Southwest Oncology Group (SWOG) and Cancer and Leukemia Group B (CALGB). Patients received either cyclophosphamide, methotrexate, 5-FU and prednisone (CMFP) chemotherapy, or observation alone.

These studies have been submitted to peer-review medical journals and may soon be available for additional evaluation. The studies report P-values which are highly significant, despite the fact that the clinical differences between the observation and treatment groups are small to date. For instance, in the NSABP study (B-13), the number

of failures at three to four years in the observation arm is 29/100 patients compared to 20/100 in the chemotherapy arm. This does, however, suggest a 31% decrease in the frequency of the occurrence in the treatment group as compared to the observation arm. An advantage from therapy was observed in those ≤ 49 as well as those ≥ 50 years of age. The treatment failure at four years was reduced by 24% in the younger age group and 50% in the older age group. However, when all patients are evaluated, no significant survival benefit has yet been demonstrated. Similarly, the intergroup study (INT-0011) with a median follow-up of three years reports that 84% of the CMFP-treated patients were free of recurrence compared to 67% of the control group. There was a significant disease-free survival benefit for the CMFP-treated patients (82% vs. 72%; $P < .001$) but no survival benefit is evident.

Because of the short duration of follow-up, caution must be exerted in the interpretation of these data. It should be remembered that highly statistically significant differences do not necessarily translate into highly significant clinical differences with long-term follow-up.

The issue of adjuvant chemotherapy for node negative breast cancer affects a large number of patients.¹ At least 50% of the patients diagnosed with breast cancer have node negative disease, and the number in the relatively good prognostic classification will increase with the expanding role of mammography. However, breast cancer appears to be a systemic disease and, after five years of follow-up, approximately one-fourth of patients with node negative disease will have a treatment failure.² Further, approximately 25% of node negative patients will be dead of breast cancer at the end of 10 years.³ These observations support the notion that there is a need for effective systemic treatment for node negative patients.

The frequency of recurrence in node negative patients appears to be related to multiple factors. Particularly important are the size of the primary lesion, the histopathological features of the neoplastic process, and the hormonal receptor status. A recent study has shown that post-menopausal node

From the Chairman, Committee on Cancer, North Carolina Medical Society, Bowman Gray School of Medicine, 300 S. Hawthorne Rd., Winston-Salem 27103.

negative women whose tumors lacked hormonal receptors had a 30.4% recurrence at six years and 28% died of their disease. The poorest prognostic group appeared to be the postmenopausal women whose malignancy lacked quantifiable ER receptors and was morphologically pleomorphic. In this group, 45.5% died of breast cancer during the 7+ years of follow-up.⁴ More recent studies have suggested that flow cytometry and oncogene amplification may have additional prognostic importance.

The ECOG/SWOG/CALGB Intergroup Study consistently showed a failure rate in the observation arm of approximately twice that in the treatment arm. Both pre- and post-menopausal and receptor positive and negative women benefited from treatment in this preliminary study. Only hormonal receptor negative or patients with primary tumors > 3 cm were included in this clinical trial.

In a more recently published study in *Lancet*,⁵ the group at the University of Naples allocated 308 premenopausal node negative and postmenopausal node negative and node positive patients to receive either Tamoxifen orally at 30 mg/day for two years, or no therapy. Overall, the 5-year disease-free survival was significantly longer in patients receiving Tamoxifen than in those receiving no adjuvant treatment. In the node negative group, the disease-free survival did not depend on menopausal status. Further, after adjusting for nodal and menopausal status, mortality was reduced in the Tamoxifen group as compared to the control group.

These data do not support the premise that all node negative patients with breast cancer should receive adjuvant chemotherapy. Some studies have shown an overall 10-year survival of 92% in patients with tumor sizes ≤ 2 cm. Lesions ≤ 1 cm may have a five- and eight-year survival of 95% to 98%. An excellent prognostic group appears to be those women with very small primary tumors (<1 cm) that are hormonal receptor positive, and for whom flow cytometry data indicate an excellent prognosis (diploid with low S phase). Any recommendations of chemotherapy for receptor positive patients with T₁ lesions must await more careful analysis of the clinical trials than that presented to us by the National Cancer Institute in their Clinical Alert release.

Receptor negative patients or those with large primaries (≥ 3 cm) may benefit from adjuvant chemotherapy. However, one must temper one's enthusiasm for adjuvant chemotherapy in this group with awareness of the morbidity and costs of treatment. There are appreciable differences in the cost of the various therapies reported in the NCI Clinical Alert. The duration and intensity of treatment and the best drug program remains to be defined. Detailed analysis will be required before a definitive answer can be made as to which of the treatments currently being proposed are most efficacious.

Conclusions

- 1) These studies are experiments in progress, and ultimate proof of benefit must await further clinical observation.
- 2) Although the data are intriguing and highly suggestive of patient benefit, physicians should proceed very cautiously in giving adjuvant chemotherapy to node negative patients outside a clinical trial.
- 3) The emerging early data do, however, suggest benefit for subsets of patients, features which will be taken into consideration in the design of subsequent trials.
- 4) All oncological specialists should participate in clinical trials in an effort to accrue sufficient patients in a timely fashion, which could answer important questions to the benefit of all our patients. □

References

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- 4 Huseby RA, Ownby HE, Frederick J, et al. Node negative breast cancer treated by modified radical mastectomy without adjuvant therapy: variables associated with disease recurrence and survivorship. J Clin Oncol 1988;6:83-8.
- 5 Bianco AR, Gallo C, Marinelli A, et al. Adjuvant therapy with tamoxifen in operable breast cancer. Lancet II 1988; 1095-9.

Letters to the Editor

A word about the past

To the Editor:

Thank you for calling my attention to the paper by Roberg entitled, "Internal medicine in the 1930s" (JAMA 1988;260:3645-6).

I could not help but be thrilled by the article which so clearly described all the difficulties we had in the 30s and 40s, when I also was a medical student at Harvard and an intern at the Brigham and Children's Hospital.

I doubt if anyone could pack in more characteristic medicine of that period except perhaps to have added the A-Z test we did for pregnancy by putting a rabbit to sleep with ether (sometimes with fatal consequences), being certain that the ovaries were normal, then injecting urine from the possibly pregnant female into the ear vein of a rabbit, and subsequently, reexploring the rabbit two days later to see if the rabbit was ovulating.

Pretty soon after that, we began to remove the rabbit's brain, put it in a small bottle, and would shake it ourselves half the day until it was clearly emulsified and then use it for prothrombin times, which we had just learned to do.

Someone at the Brigham also had the bright idea of using serum from blood, and we not only typed and cross-matched blood but made the serum and gave it to patients.

Eben Alexander, Jr., M.D.
Wake Forest School of Medicine
300 S. Hawthorne Rd.
Winston-Salem 27103

Editor's Comment:

Those were the days when "men were men."

Ethical ambiguities of our time

To the Editor:

The ramifications of the plague mentality regarding AIDS have resulted in numerous ethical ambiguities which often result in the tragic dilemma of choosing between the duty to protect the patient versus the obligation to protect the health of society. At one time the physicians' professional responsibility was strictly limited to rights of each person who voluntarily sought their services. In recent years, however, there has been an increasing conclusion that there is not only an obligation to patients but a social duty to the public at large. As a result it is generally accepted today that health care decisions should be based on ethical considerations both for the well-being of the patient and of society. Confidentiality in the physician-patient relationship is, therefore, no longer absolute and the treating clinician should articulate

this concept to all new patients.

At this time it is generally accepted that confidentiality does not obviate the need to protect those who may unknowingly be placed in immediate danger from the acts of a patient. This includes the danger of being exposed to disease. Although confidentiality is a crucial element in the therapeutic relationship, one can no longer assume that it is absolute, for it may be compromised when it conflicts with a higher moral value such as the duty to safeguard other human lives. A Supreme Court decision explicitly defines the circumstances under which reporting a contagious disease is not "regarded as an invasion of privacy." (Whalen vs. Roe, 429 U.S. 589 [1977].)

For confidential patient information to be released there must be a valid public health rationale. The information must be given only to proper authorities and the appropriate privacy statutes must be in place. Under such careful guidelines the reporting of communicable diseases has become routine and now AIDS is reportable in every state. The duty to breach medical confidentiality in order to safeguard the life of another is becoming more common. Fifty states, for example, mandate that physicians must report child abuse even in the absence of definitive supporting clinical data. This duty now takes precedence over confidentiality. Several states now have comparable legislation regarding the abuse of the elderly. The Tarasoff case was the first major well publicized assault on the concept of confidentiality. (Tarasoff vs. Regents of the University of California, 551 P2d347 [Cal 1976].) It is clear that its application has been broadened. In order to assure treatment for those infected with AIDS we require privacy, confidentiality, professional responsibility and respect for the individual. The social implications regarding the spread of infection, however, require education and even possibly civil and criminal sanctions for those whose behavior endangers others.

Confidentiality has always been regarded as the cornerstone of medical ethics. Without it individuals will not turn to the professionals for help. A profession is defined by its technology but also by its ethics, but in recent years we are witnessing an erosion of privacy and confidentiality, for when professionals become providers and patients become consumers the door is opened to any number of interested third parties. Our professional oath clearly states, however, that our duty is to the patient, not the payor, that the physician must serve the patient regardless of who pays the bill. It is important that ideals not be confused with imperatives.

Today confidentiality finds itself in a precarious legal position. Some have suggested that the Tarasoff decision should be applied to the HIV positive patient who continues to practice unsafe sex. There is no doubt that AIDS clearly poses a tremendous threat to public health. As a result it

raises some of the most vexing medical, social, and legal problems ever faced by our profession and by society.

W.S. Feldman, M.D.
501 Billingsley Rd.
Charlotte 28211

On nurses and RCTs

To the Editor:

Dr. Estes's message in the Bulletin of the North Carolina Medical Society (Jan. 1989:11) concerning RCTs doesn't go far enough in support of nurses.

Praising nurses for their nurses' aide training programs while keeping silence as the AMA goes forward with the training of RCTs won't fool many nurses.

We should clearly oppose the idea of RCTs for the obvious reason that nursing procedures should be taught and supervised by nurses.

While we are at it, we should advocate increased authority for nurses to make decisions they have the training to make. Requiring an order from a physician for a nurse to initiate care that the nurse knows more about than the physician is ridiculous and degrading.

Nurses feel that physicians continue to try to keep them in subjugation. They are right. We praise their profession while denying them professional status.

James H. Sanders, Jr., M.D.
Family Practice
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Brevard 28712

Some thank-yous for the January articles on Dr. Busse and Dr. Womack.

To the Editor:

I was immensely pleased to see the assembled biographical comments on Dr. Ewald W. Busse in the January 1989 volume of the North Carolina Medical Journal (49:42-6). Bud has been an outstanding leader since he set foot at Duke in 1953. He has served Duke University extremely well in a variety of positions of responsibility as the Chairman of Psychiatry, the founding father of the Center for Aging and Human Development and subsequently as Dean and Associate Provost of the School of Medicine.

In his capacity as Chairman of the Department of Psychiatry, he took a non-existing unit within the Medical School and converted it to one of the premier departments of Psychiatry in the nation. He provided it with balance in both Clinical Psychiatry as well as Basic Research. He attracted some outstanding colleagues, many of whom continue to serve the Medical School and the community.

As the founding father of the Center for Aging and Human Development, he created the first interdepartmental, interdisciplinary research unit in the University. It has thrived continuously since 1955, not only as viewed on the Duke campus but also in terms of continuing support from the

National Institutes of Health. We have used it as the model to emulate for interdisciplinary centers of research at Duke. As Dean and Associate Provost, he broadened his horizons to include the issues concerning the whole spectrum of medical education. Bud is very careful about what he agrees to do. Once he assumes a position of leadership, you can rest assured that the program will do extremely well.

All of us are looking forward to working with him in his current role as President of the North Carolina Institute of Medicine.

Once again, congratulations on the publication.

W.G. Anlyan, M.D.
Chancellor
Duke University
Durham 27706

To the Editor:

It was great fun to read Dr. Peacock's article about Nathan Womack in the January 1989 issue of the North Carolina Medical Journal (49:31-7). We remember two things about Dr. Womack that show yet another side of this wonderful man.

(1) When we arrived in Chapel Hill in the summer of 1970, Dr. Womack was a member of the Board of Governors of the University of North Carolina Press, the scholarly publishing arm of the University. While he could have taken the duties such a position involved lightly, he did not. He was a lover of books of all kinds, as Dr. Peacock wrote, and he strove to see that the Press published only the best.

(2) When our daughter, then aged three, met Nathan's wife, Margaret, they discovered an immediate natural affinity for one another. A grandmother with faraway grandchildren met a child with faraway grandmothers, and they spent many Sunday afternoons together, reading children's books from the Library and baking (and eating) pound cake. Laura never mentioned Nathan until the one time she heard him referred to as "Dr. Womack" by one of us, and her response was quick and emphatic and reflected her only perception of him: "Mr. Womack is not a doctor. He's a gardener!"

Thank you for the article. We enjoyed reading it.

Mathew N. Hodgson
Director, UNC Press
Chapel Hill 27514
Patricia K. Hodgson
Director, Communications
North Carolina Medical Society
Raleigh 27611

To Dr. Peacock:

What a sheer delight it was to read your article on Nathan Womack. It brought back so many memories of my years at N.C. Memorial—and also explained a few things I didn't understand at the time!

I can recall Dr. Womack asking some penetrating questions about some of our more esoteric ophthalmology procedures, and my shock and amazement when I had to explain a little more than I thought I would be expected to explain.

I can even recall "Willie" Wynell(?) falling back on the last defense left to an OB resident: "I'm gonna do it 'cause Daddy Ross says to do it!"

I find it hard to believe that you were ever at a loss for words (spoken or written), or that you had to have any coaching in English. At any rate, we are all grateful that you availed yourself of the opportunity because you have given us so many excellent speeches and papers to enjoy.

Shahane R. Taylor, Jr., M.D.
Greensboro Ophthalmology Associates
348 North Elm Street
Greensboro, NC 27401-2174

To Dr. Peacock:

I read your piece on Nathan Womack last night and thought it was superb.

John B. Graham, M.D.
UNC, Dept. of Pathology
614 Brinkhous-Bullitt Bldg. 228H
Chapel Hill, NC 27514

To Dr. Peacock:

I wanted to let you know how much I enjoyed your article on Dr. Womack in the January issue of the North Carolina Medical Journal. Your personality added a new dimension to my understanding of the Medical School Department of Surgery from which I had my surgical beginning. Dr. Womack accomplished many great things during his lifetime. To the extent that he played a role in helping you develop your writing skills, as you indicated, he should consider this one of his great accomplishments. Keep up the good work.

Howard Holderness, Jr., M.D.
Plastic and Reconstructive Surgery
North Carolina Plastic Surgery Center
200 East Northwood Street
Greensboro, NC 27401

A comment from Dr. Dykers on his 1987 article

To the Editor:

A little over a year ago you published in the North Carolina Medical Journal a piece by yours truly, "AIDS: Discrimination and Justice" (1987;48:661-3). This article was headed by a very prominently displayed disclaimer that two infectious disease experts had urged that the article not be published. Since that time, much of what was recommended in that article has come to pass, specifically, the recommendations for testing presented in the AMA physician guidelines sent out earlier this month from their Division of Health Science. I enclose a copy of page three from those guidelines and call your particular attention to the eighth category, "persons undergoing medical evaluation or treatment."

There was further note that the legislature of North Carolina has quite appropriately enacted a requirement that

HIV positive persons notify any future sexual partners of their HIV status. I felt like this was a cornerstone of the approach outlined in "AIDS: Discrimination and Justice."

The state counselors who are attempting to educate us about the laws recognize that this is very difficult to enforce, but the codification in the law demonstrates the societal expectation.

With the drastic changes that have taken place in the past year it simply seemed to me that a reevaluation of the entire article in a less prejudicial manner might well be appropriate.

John R. Dykers, Jr., M.D.
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Editor's Reply:

It's nice to be rewarded by being smarter than your critics. Enjoy your triumphs while you may.

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Wilson
Michael Gray Nunley (OPH), 2108 Hermitage Rd., Wilson
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Continuing Medical Education

March 15-19
Internal Medicine 1989
Place: Chapel Hill
Credit: 25 hours, Category I
Info: Office of CME, UNC School of Medicine, CB
#7000, 231 MacNider Building, Chapel Hill 27599-
7000. 919/962-2118

March 31
Pulmonary Disease Update
Place: Greenville
Credit: 6 hours, Category I
Info: Mary C. Valand, Office of Continuing Medical
Education, Box 7224, Greenville 27835-7224. 919/
551-5200

March 31
Third Annual Coagulation Conference on Thrombosis and
Hemostasis
Place: Chapel Hill
Credit: 6 hours, Category I
Info: Office of CME, UNC School of Medicine, CB
#7000, 231 MacNider Building, Chapel Hill 27599-
7000. 919/962-2118

March 31 - April 1
Laser Angioplasty Symposium
Place: Greensboro
Credit: 12 hours, Category I AMA
Fee: \$750
Info: Nancy Edmonds, RN, Cardiovascular and Thoracic
Surgeons of Greensboro. 1-800/632-1311.

April 1
Training Program for Physicians With a Focus on Substance
Abuse in the Primary Care Setting

Place: Durham
Info: Duke University Alcoholism & Addictions Pro-
gram. 919/471-4421

April 6
North Carolina Clinical Neuro-Ophthalmology Review
Place: Chapel Hill
Info: Baird S. Grimson, MD, Dept. of Ophthalmology,
CB #7040, 617 Clinical Sciences Bldg., UNC, Chapel
Hill 27599-7040. 1-919/966-5296

April 6-7
The 13th Annual Symposium of the Lineberger Cancer
Research Center: Viruses and Cancer
Place: Chapel Hill
Info: Lineberger Cancer Research Center, CB# 7295,
School of Medicine, University of North Carolina,
Chapel Hill 27599-7295

April 12-14
Diagnostic Ultrasound: Physics
Place: Winston-Salem
Credit: 7 hours per day Category I AMA
Info: Registrar, Ultrasound Center, Bowman Gray School
of Medicine, Winston-Salem 27103. 919/748-4505

April 14 & 15
Seventh Annual ECU Biotechnology Symposium
Place: Greenville
Credit: 8 hours Category I
Info: Mary C. Valand, Office of Continuing Medical
Education, Box 7224, Greenville 27835-7224. 919/
551-5200

April 14-15
Advanced Cardiac Life Support Provider Course

Place: Asheville
Credit: 16 hours
Fee: \$200 or \$100 for recertification
Info: Daniel L. Dolan, MD, Course Director, MAHEC,
501 Biltmore Ave., Asheville 28801. 704/257-4419

April 16-19

Administrative Skills II: Planning Change and Conflict
Resolution

Place: Quail Roost Conference Center, Rougemont

Credit: 20 Category I AMA, 2.0 CEU, 20 AAFP

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

April 17-21

Diagnostic Ultrasound: Obstetrics

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School
of Medicine, Winston-Salem 27103. 919/748-4505

April 21-22

Pediatric Post-Graduate Seminar

Place: Winston-Salem

Credit: 9 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray
Sch. of Med., Winston-Salem 27103. 919/748-4450

April 23-26

16th Annual Regional Conference on Maternal and Child
Health, Family Planning, and Services for Children
with Special Health Needs

Place: Chapel Hill

Credit: 14 hours Category I AMA

Fee: \$45

Info: Brenda Mauer, Registrar, Office of CME, UNC
School of Public Health, CB #8165, Miller Hall,
Chapel Hill 27599-8165. 919/966-4032

April 24-25

Concepts in Neonatal Pediatric Respiratory Care

Place: Chapel Hill

Info: Office of CME, UNC School of Medicine, CB
#7000, 231 MacNider Building, Chapel Hill 27599-
7000. 919/962-2118

April 24-28

Diagnostic Ultrasound: Radiology (Abdomen)

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School
of Medicine, Winston-Salem 27103. 919/748-4505

April 27-May 1

Learning Disorders Course

Place: Chapel Hill

Credit: Approximately 28 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB
#7000, 231 MacNider Building, Chapel Hill 27599-
7000. 919/962-2118

April 28-29

Orbital and Oculoplastics

Place: Winston-Salem

Credit: 9 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray
Sch. of Med., Winston-Salem 27103. 919/748-4450

April 28-29

Frank R. Lock Symposium in OB-GYN

Place: Winston-Salem

Credit: 10 hours Category I AMA

Fee: \$150

Info: Sally H. Gulley, Division of CME, Bowman Gray
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May 1-5

Diagnostic Ultrasound: Neurovascular

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School
of Medicine, Winston-Salem 27103. 919/748-4505

May 2-5

Radiology Review Course

Place: Research Triangle Park

Credit: Category I, CEU

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

May 9-10

2nd Rheumatology and Immunology Symposium

Place: Durham

Credit: Category I, CEU, AAFP

Info: Cindi Easterling, Office of CME, DUMC, Durham
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May 10-12

Diagnostic Ultrasound: Arterial/Venous Doppler

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School
of Medicine, Winston-Salem 27103. 919/748-4505

May 11, 18, June 8, 15

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Place: Asheville, Winston-Salem, Greenville, Fayetteville,
respectively

Fee: \$40

Info: Brenda Mauer, Registrar, Office of CME, UNC
School of Public Health, CB #8165, Miller Hall,
Chapel Hill 27599-8165. 919/966-4032

May 15-19

Diagnostic Ultrasound: Echocardiography

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

May 19

Recent Advances in Psychiatry

Place: Winston-Salem

Credit: 6 hours Category I

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray Sch. of Med., Winston-Salem 27103. 919/748-4450

May 19-20

The 18th Annual Pediatric Pulmonary/GI Program

Place: Durham

Fee: \$100

Info: Alexander Spock, M.D., DUMC, Box 2994, Durham 27710. 919/681-3364

May 20

Update in Pathology

Place: Greenville

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

May 22-23

Diagnostic Ultrasound: Urology

Place: Winston-Salem

Credit: 7 hours Category I AMA

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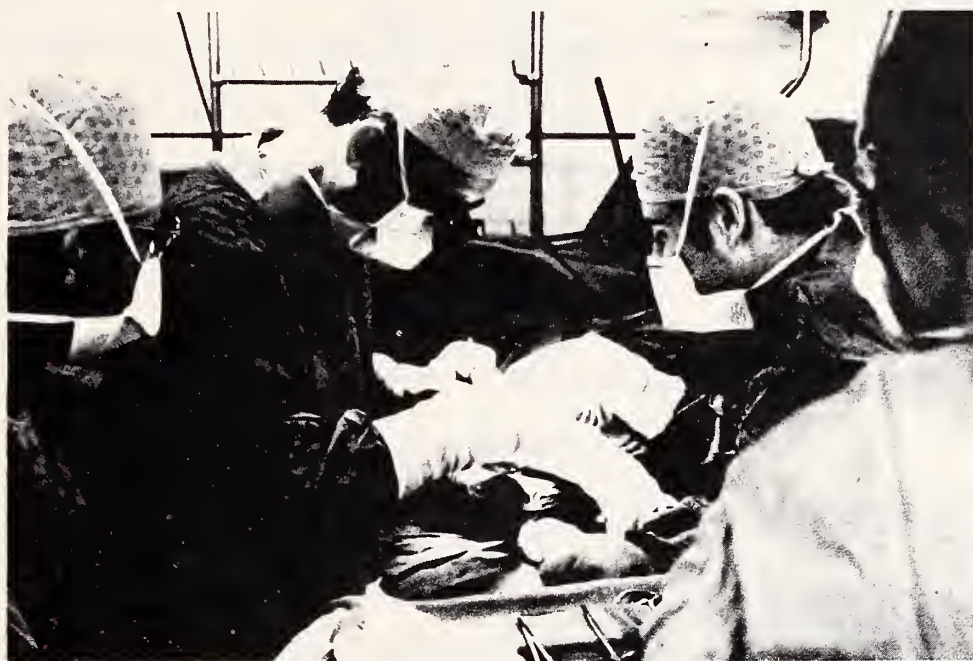
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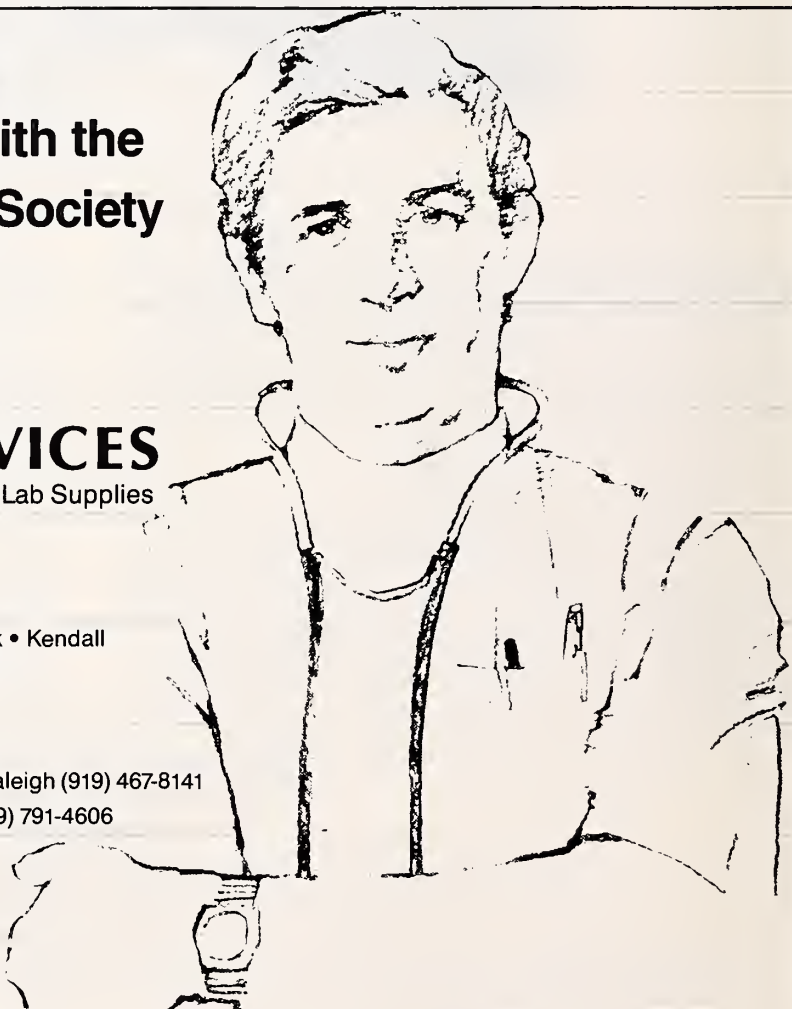
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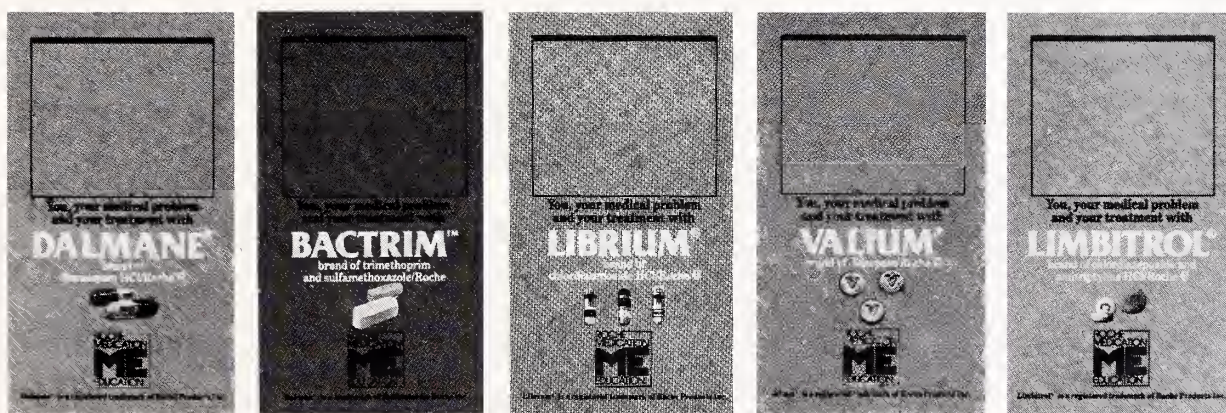


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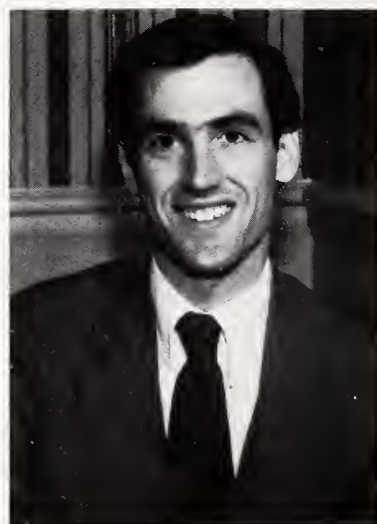
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For Doctors and their Patients

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R. Bradley Thomason III, M.D.

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Rocky Mountain Spotted Fever vs. Viral Syndrome

Peter J. Rizzolo, M.D., and
Jois Addison, MLT

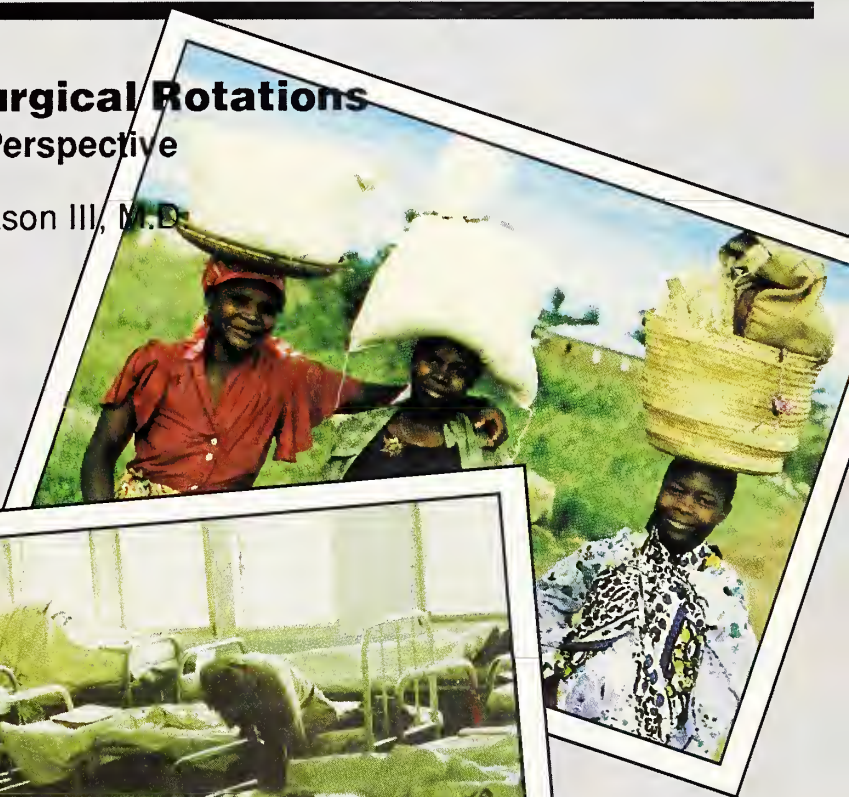
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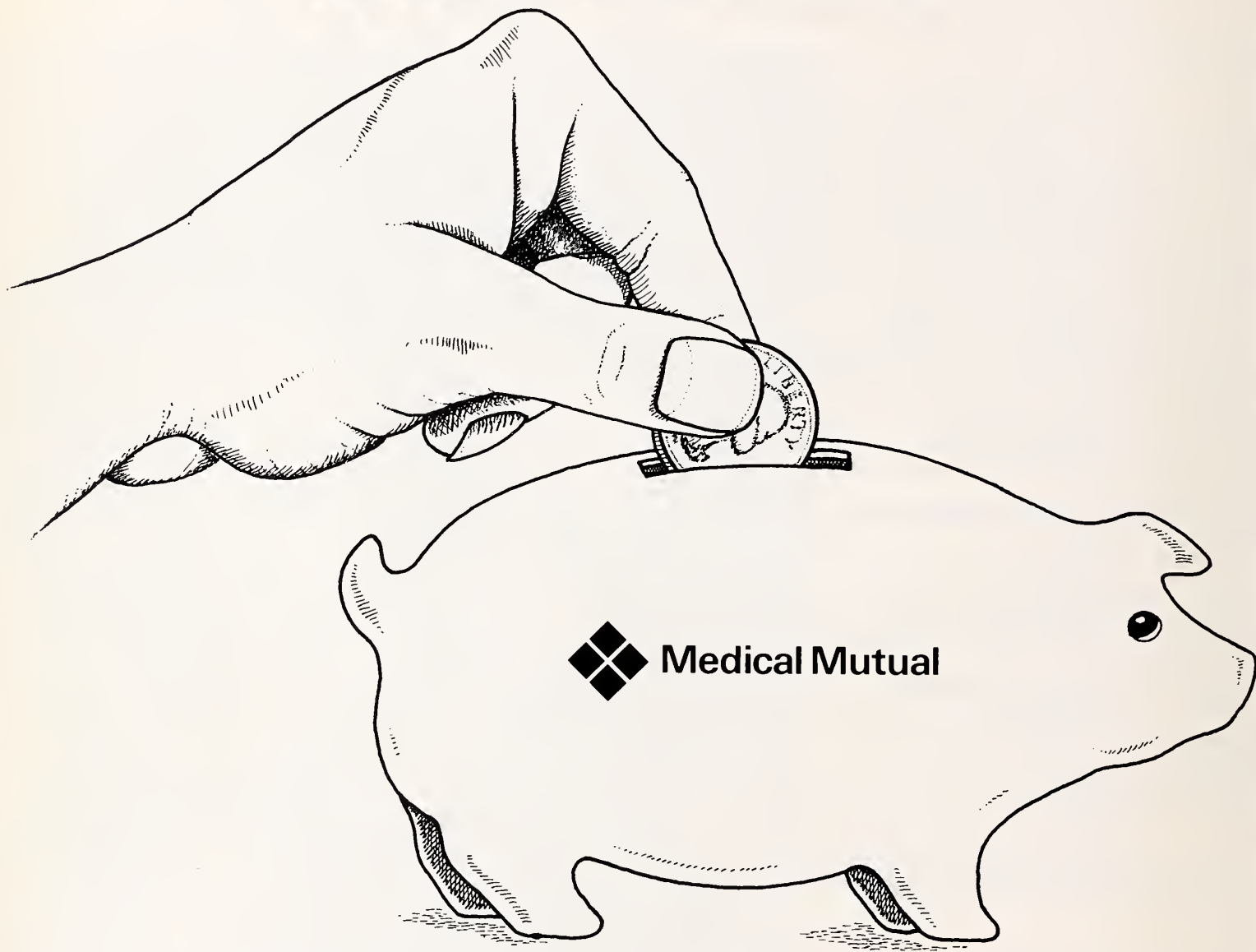
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Rocky Mountain Spotted Fever vs. Viral Syndrome

A Management Approach in a Primary Care Setting

Peter J. Rizzolo, M.D., Lois Addison, MLT

In a university-based teaching practice of approximately 8,000 active patients over a two-year period, all patients presenting with unexplained fever, with or without other clinical signs or symptoms compatible with the diagnosis of Rocky Mountain Spotted Fever (RMSF), were treated with tetracycline. Numerous authors have stressed the importance of such early treatment.¹⁻⁴ Our study sought to establish the characteristics of patients who would be treated utilizing an early treatment strategy. Forty-eight patients met the study criteria and received antibiotic treatment. None developed conclusive laboratory evidence of infection with RMSF. Based on community prevalence of the disease and the size of our practice population, we would have expected approximately one to two cases of RMSF over the two-year period. Considering the high morbidity and mortality associated with delayed diagnosis and treatment of RMSF,^{1,5,6} we propose that early treatment of persons with unexplained fever with or without other signs and symptoms of RMSF is a cost-effective and reasonable clinical approach.

Rickettsia rickettsii is a pleomorphic coccobacillus whose most important vector is the tick and the animals on which it feeds. The *Rickettsii*, either male or female, become activated when the tick attaches to a host and partakes of a blood meal. The disease is most common from April through September but is seen sporadically during the late Fall and Winter months.

Method

The purpose of the study was to treat prospectively all patients in our practice who presented with unexplained fever, with or without other signs or symptoms compatible

with RMSF. An educational program was presented to faculty and residents with emphasis on the importance of early treatment of suspected RMSF.

We distributed a one-page reporting form that outlined treatment indications, diagnostic tests, appropriate cultures, and treatment recommendations. These forms were placed in the patient care modules and nurses were instructed to place a form on the chart of all patients presenting with fever. By collecting duplicate prescriptions we monitored all patients treated with Tetracycline. These charts were reviewed to pick up instances in which patients were treated for presumptive RMSF but in whom reporting forms were not completed.

The study covered two separate periods, from April 1982 through September 1982, and from April 1983 through September 1983. Prior to the second season of the study a second series of educational conferences were conducted.

Results

Forty-eight patients were treated for presumptive RMSF over the two-year study period. The age range was two to 46 years, with thirteen patients under 18 years of age.

Thirty-one were male and 17 female. Racial distribution was 43 white and five black. Twenty-two had a history of a tick bite (46%). Symptoms are shown in table 1 (next page). The triad of fever, headache, and rash was seen in only six patients (13%), whereas the combination of fever, headache, and myalgias was seen in 35 patients (73%). Twenty subjects (42%) had one or more gastrointestinal symptoms. Physical findings are shown in table 2 (next page). Although only five subjects complained of sore throat, 21 were described as having an infected pharynx without exudate and only minimal cervical adenopathy. Patients who had exudative pharyngitis and/or positive throat cultures were not included in the study group. Thirty-two had acute and convalescent

From Department of Family Medicine, University of North Carolina School of Medicine, Chapel Hill 27514.

indirect hemagglutination antibody (IHA) test for RMSF. In 25 of the subjects who were tested for IHA, titers were reported as less than 1:16 and were unchanged from the acute and convalescent specimens. Thirty-five subjects had WBC and differential blood counts. Ten of 35 patients (21%) had band counts of over 10% with total WBC count below 10,000. All 48 subjects were treated with tetracycline for a 10-day period. Pill counts or other methods to measure compliance were not done. Table 3 shows the day treatment was started in relation to the onset of symptoms. Forty of the 48 subjects were treated within the first four days of onset of symptoms.

Discussion

Hattwick et al¹ reviewed 44 fatal cases of RMSF and compared them to 50 non-fatal cases of similar age, sex, date of onset, and place of occurrence. The critical difference was the later onset of treatment in the fatal cases. They identified several reasons for this delay. Initial nonspecific presenta-

tion, unexpected symptoms, (i.e., prominent gastrointestinal symptoms), absence of history of tick bite, and late onset of rash were all features of the fatal cases. Only two of the fatal cases were treated before the sixth day of illness. Self limiting viral syndromes so common in the spring and summer months can mask the much less common infection with RMSF leading to delay in diagnosis with consequent poor outcomes. In addition, the high prevalence of gastrointestinal symptoms in the 44 fatal cases most likely contributed to the delay in diagnosis. Other authors have stressed the frequency of gastrointestinal symptoms in the first three days of illness of patients with RMSF.^{1,4,7} The purpose of our study was to identify clinical situations in which critical treatment decisions need to be made in a geographic area where RMSF is endemic. Through an educational program we encouraged attending staff physicians and residents to treat, on the initial office visit, patients who presented with unexplained fever with or without other signs or symptoms compatible with RMSF.

Over a two-year period utilizing this liberal treatment approach 49 patients were treated with tetracycline. In Orange county, North Carolina, based on prevalence data for the years 1977 through 1980, we could have expected to see in our practice one to two cases of RMSF. The number of reported cases and the national incidence rate of RMSF increased slightly in 1986. Although North Carolina reported the most cases (129 cases, 2.1/100,000), Oklahoma had the highest incidence with a rate of 3.2/100,000. South Carolina was the only other state with a rate greater than 1.0/100,000.^{4,8}

Diagnosis based on serologic testing is not clinically useful since both acute and convalescent titers are necessary and are not available until long after treatment decisions need to be made. In addition, there is evidence in the literature suggesting that early treatment may delay or blunt antibody response.^{9,10}

Table 1
Symptoms reported by pateints with
"Possible RMSF"

Symptoms	N	%
Fever	48	100
Chills	26	54
Myalgias	35	73
Headache	41	85
Rash	08	17
Nausea and vomiting	15	31
Diarrhea	08	17
Abdominal pain	06	13
Weakness	18	38
Combined gastro-intestinal symptoms	20	42

Table 2
Physical Findings in the Patients
Treated with "Possible RMSF"

Finding	N	%
Rash	09	19
Photophobia	12	25
Adenopathy	14	29
Dehydration	05	10
Meningeal signs	04	08
Inflamed pharynx	21	44
Other	06	13

Table 3
Day Treatment Started
from the Onset of Symptoms

	N
First	10
Second	12
Third	08
Fourth	10
Fifth	03
Sixth	01
Seventh	01
Tenth	01
Total	48*

*data missing for two cases

Review of the clinical presentation of our patients as shown in the tables reveals a combination of signs, symptoms and laboratory findings consistent with a variety of self-limiting viral syndromes that present themselves in the months from April through September. Unfortunately, in its early stages RMSF is indistinguishable from these benign syndromes. The finding of normal white blood counts with greater than 10% bands has been described by Hall as being strongly suggestive of RMSF in the proper clinical setting.¹¹ Twenty-one percent of our subjects who had white blood counts had band counts in excess of 10% with total blood count under 10,000. Our study would suggest that a variety of viral syndromes may cause significant shift to the left in the differential blood count without a concomitant elevation of the total white blood cell count. The use of tetracycline drugs in children under seven years of age is generally contraindicated because of the risk of discoloration of the permanent teeth. Since tetracycline is the first line drug for the treatment of RMSF, physicians must carefully consider the relative risk versus benefit in treating potential cases of this serious disease. The degree of discoloration is related to the individual tetracycline used, the total dose, and the developmental state of teeth formation. The average darkening caused by a single six-day course of oral tetracycline is a cosmetically negligible change in coloration.² When the decision to treat is made, the use of oxytetracycline may diminish the risk of tooth darkening. In children, the recommended dose of tetracycline or oxytetracycline is 30 to 50 mg/kg/day in four divided doses.¹²

We conclude that primary care physicians practicing in an area endemic for infected ticks and with a consequent relatively high incidence of RMSF are justified in treating individuals presenting with unexplained fever with or without other symptoms of RMSF. Until a laboratory test is available that will confirm the diagnosis of RMSF within the first few days of onset of symptoms, early treatment will be imperative if we expect to reduce the death-to-case ratio. □

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AUTHORS

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BRIEF SUMMARY

CONTRAINDICATIONS

There are no known contraindications to the use of sucralfate.

PRECAUTIONS

Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that simultaneous administration of CARAFATE (sucralfate) with tetracycline, phenytoin, digoxin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The clinical significance of these animal studies is yet to be defined. However, because of the potential of CARAFATE to alter the absorption of some drugs from the gastrointestinal tract, the separate administration of CARAFATE from that of other agents should be considered when alterations in bioavailability are felt to be critical for concomitantly administered drugs.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Chronic oral toxicity studies of 24 months' duration were conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). There was no evidence of drug-related tumorigenicity. A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies were not conducted.

Pregnancy: Teratogenic effects. Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients treated with sucralfate, adverse effects were reported in 121 (4.7%).

Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

OVERDOSAGE

There is no experience in humans with overdosage. Acute oral toxicity studies in animals, however, using doses up to 12 gm/kg body weight, could not find a lethal dose. Risks associated with overdosage should, therefore, be minimal.

DOSAGE AND ADMINISTRATION

The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

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Reference:

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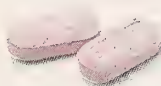
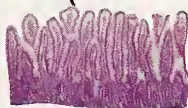
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Is a Lung Nodule Always a Lung Nodule?

Osteocartilaginous Exostosis Mimicking an Apical Lung Mass

Mark R. Milunski, M. D. and Neil B. Hampson, M.D.

Because of overlapping anatomical structures and anatomical anomalies, an apparent lung mass can sometimes be "created" where indeed no such mass exists. We present a patient with an osteocartilaginous exostosis mimicking a right apical lung mass and emphasize the need for evaluating such masses in a third dimension, particularly when these "masses" occur in the apices of the lungs.

Our patient is a 61-year-old black man with a chest film showing a right apical lung mass (figure 1A). Further x-ray studies demonstrated a right apical lung mass on the posteroanterior view, not visible on the lateral projection (figure 1B). An apical lordotic roentgenogram of the chest (figure 2; next page) demonstrated a 3 cm. mass lesion in the right apex which appeared to have an area of central cavitation.

In order to further define the position of the lesion, a computed tomographic scan of the chest was performed and showed the nodule to be an osteocartilaginous exostosis of the posterior portion of the right third rib (figure 3; next page).

In a series of 579 cases of osteocartilaginous exostoses, approximately 90% of the patients had solitary lesions.¹ Nearly one-half of the cases in this series involved the long bones, with only 15 cases (3%) occurring in the ribs. Dahlin described the typical roentgenographic appearance as that of a projection composed of a cortex continuous with that of the underlying bone and a spongiosa similarly continuous.

Normal anatomic variations of the axial skeleton have also been recognized as a cause of apparent "pulmonary nodules." Two cases have been reported of a first rib causing pseudonodules on computed tomograms of the chest, while

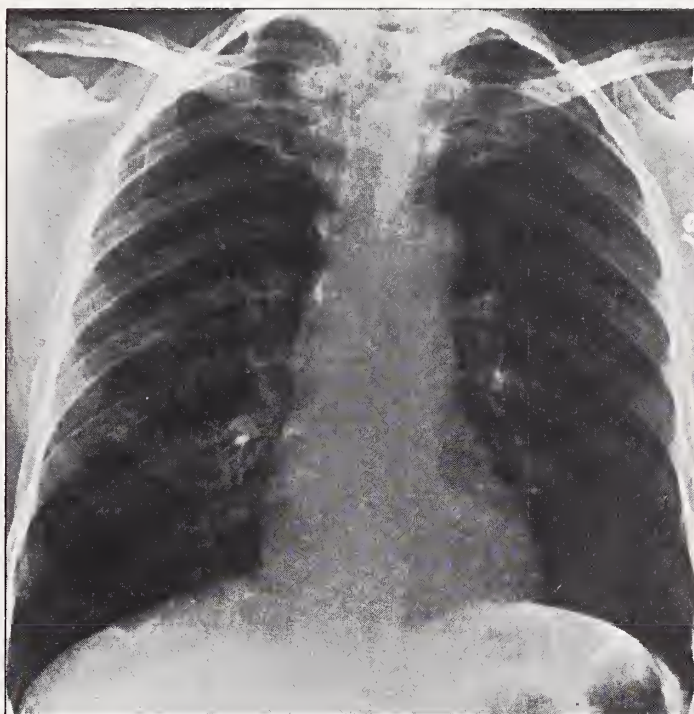


Figure 1A. Posteroanterior view demonstrates a right apical nodule.



Figure 1B. Lateral view reveals no visible nodule.

From Division of Cardiovascular Disease, Department of Medicine, Washington University School of Medicine, St. Louis, OH 63110 (MRM), and Division of Allergy, Critical Care, and Respiratory Medicine, Department of Medicine, Duke University Medical Center, Durham, and Veteran's Administration Medical Center, Durham 27710 (NBH). At the time of writing this paper, Dr. Milunski was a Senior Resident in Medicine at Duke University Medical Center.



Figure 2 Lordotic view shows a 3 cm apical nodule with possible central cavitation.

others have reported pseudonodules seen on lateral chest roentgenograms due to thickened areas of bone on the twelfth thoracic and first lumbar vertebral laminae.^{2,3} Shortsleeve and Foster went on to state that in their review of 100 randomly selected chest roentgenograms, 73 had the pseudonodule present in the T12-L1 area on the lateral projection.³ It is also well known that calcification of the costochondral junction of the first rib is a common cause of pulmonary pseudonodules.

This patient's lesion is especially unusual because, on the lordotic view of the chest, the rib exostosis appears even more like a solitary lung nodule with an area of central cavitation. The case demonstrates the utility of computed tomographic scanning of the chest in evaluating apical lesions, particularly when they are not visible on the lateral chest roentgenogram. Defining such lesions in a "third dimension" is of great help in planning further diagnostic studies and perhaps sparing the patient more invasive procedures, including surgery.

An incidental finding on the computed tomographic scan of the chest was a paratracheal mass lesion with apparent endotracheal extension, not appreciated on the patient's admission chest roentgenogram. Fiberoptic bronchoscopic biopsy of the mass revealed it to be a squamous cell carcinoma, most likely arising from the esophagus and the apparent etiology of the symptoms that led to the first chest film. □

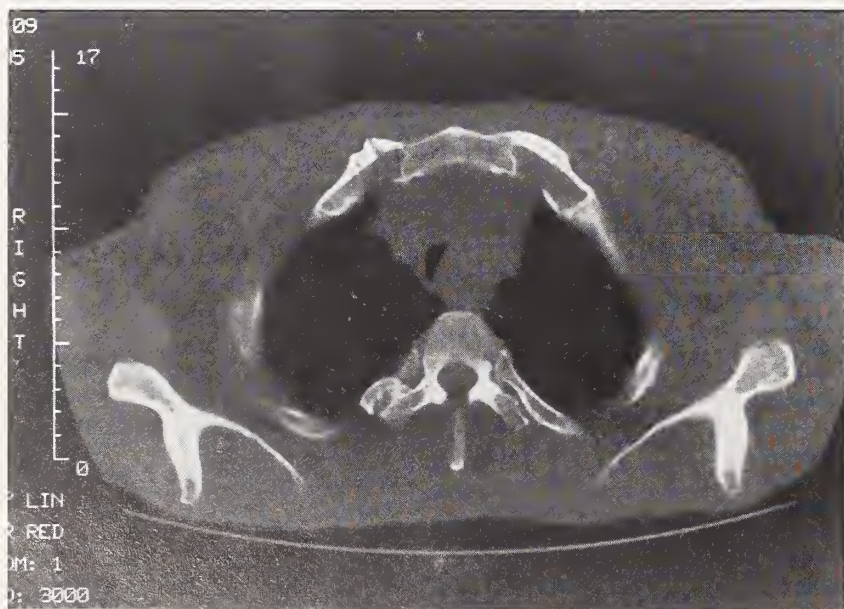


Figure 3 Computed tomographic scan of the chest reveals an exostosis of the right third rib where it articulates with the thoracic vertebra. Lung "windows" (not shown here) demonstrated no pulmonary nodule. Incidental finding of a paratracheal mass with endotracheal extension can also be seen.

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Carotid Endarterectomy in Blacks and Whites

Implications for Surgery Residency Training

Edmund J. Rutherford, M.D., Deborah L. Covington, M.S., Thomas V. Clancy, M.D., and J. Gary Maxwell, M.D., F.A.C.S.

The number of carotid endarterectomies performed per year has increased 567% in the last decade.¹ It is currently the most common major non-cardiac vascular procedure performed in the United States.² As such, it should be well represented in the operative experience of chief residents in busy surgical training programs. However, we found that very few carotid endarterectomies have been performed on the University Service at New Hanover Memorial Hospital. To explain this disparity, we examined the demographic makeup of patients undergoing carotid endarterectomy at this facility.

Materials and Methods

We reviewed demographic data of all patients discharged from New Hanover Memorial Hospital from January 1984 to December 1986 with the primary or secondary ICD-9-CM procedure code of carotid endarterectomy (38.12). This data included race, age, sex, and pay status. We compared this information with that for the total population of patients discharged from New Hanover Memorial during approximately the same time period, and with the census data of New Hanover County and the four surrounding counties whose residents are referred to this facility.³ We collected similar information over a three-year period from five other teaching hospitals in North Carolina and compared it with the data from our hospital. By prior agreement, these five hospitals are not identified in this report.

From New Hanover Memorial Hospital, Area Health Education Center, Wilmington 28402; and the Department of Surgery, University of North Carolina School of Medicine, Chapel Hill 27514. Reprint requests to Dr. Rutherford: A.H.E.C.—Surgery, New Hanover Memorial Hospital, 2131 S. 17th St., Wilmington 28402.

Results

Three hundred forty (340) carotid endarterectomies were performed in 327 patients during the 36-month period of study at New Hanover Memorial Hospital. Only 21 (6%) of the 327 patients were black (table 1). In the five other teaching hospitals in various regions of North Carolina, the percentage of blacks among all carotid endarterectomy patients ranged from 1% to 10%. These data may be slightly skewed because patients who had bilateral procedures or reoperations could not be identified.

Figure 1 (next page) compares the percentage of blacks among carotid endarterectomy patients, the percentage of black patients in the hospital population, and the percentage of blacks in the hospital watershed population. For each hospital, the percentage of blacks undergoing carotid endarterectomy was much lower than the percentage of blacks among all hospital discharges, and the percentage of blacks in the surrounding population.

Comparisons of the carotid endarterectomy population by sex showed that, in all six hospitals, 62% of the blacks were women, whereas only 42% of the whites were women

Table 1
Carotid Endarterectomies in North Carolina

Hospital	Total	White ^a	Black	%Black
NHMH ^b	327	306	21	6
2	418	404	14	3
3	246	222	24	10
4	300	277	23	8
5	102	97	5	5
6	526	522	4	1
Total	1919	1828	91	5

a. includes "other" race.

b. New Hanover Memorial Hospital

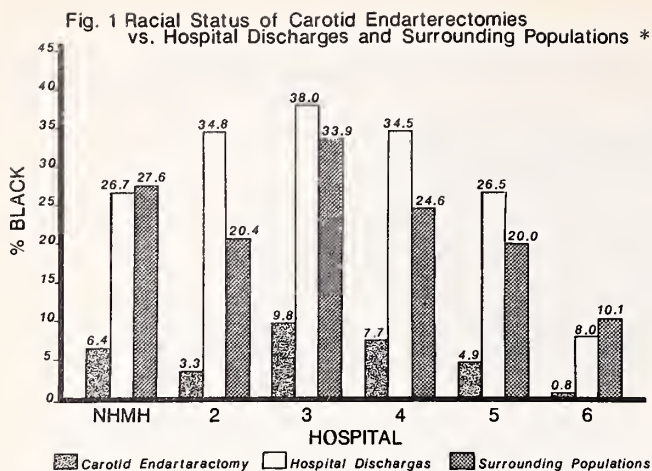


Table 2

Carotid Endarterectomies by Race and Sex

Hospital	Black	% Women	White*	% Women
NHMH ^b	21	62	306	43
2	14	50	404	41
3	24	63	222	45
4	23	61	277	44
5	5	60	97	40
6	4	100	522	41
Total	91	62	1828	42

a. includes "other" race

b. New Hanover Memorial Hospital

($p < .001$) (table 2). Patients ranged in age from 30 to 90 years with a mean age of 66.3 years. Blacks ranged in age from 36 to 83 years with a mean age of 64.3 years, and whites ranged in age from 30 to 90 years with a mean age of 66.4 years ($p = .03$).

To determine whether financial status influenced performance of carotid endarterectomy, we examined the type of payment among all discharges and among carotid endarterectomy patients. Patients were defined as those with insurance (third party, Medicaid, Medicare) and those without insurance (self-pay). Thirteen percent of all discharges to the study hospitals were self-pay, while only 2% of all carotid endarterectomy patients were self-pay (table 3). Among carotid endarterectomy patients, 2% of whites were self-pay while 9% of blacks were self-pay (table 4).

Discussion

In 1962 Bauer noted that large atherosclerotic plaques of the proximal cervical cerebral arteries were more common in whites than in blacks.⁴ Other authors have demonstrated the clinical, angiographic, or autopsy-derived differences in the atherosclerotic patterns in racial subgroups not explained by hypertension, diabetes, hypercholesterolemia, or ischemic heart disease.⁵⁻⁷ Russo, Gorelick, and Caplan each demonstrated the decreased incidence of extracranial and the increased incidence of intracranial lesions in blacks compared to whites. This pattern is not limited to blacks and whites; Nishimura⁸ demonstrated the same pattern in the Japanese. Johnson et al⁹ noted a racial difference in patients with aneurysms of the abdominal aorta. They found the differ-

Table 3
Payment Status of Carotid Endarterectomies
in North Carolina

Hospital	All Discharges	% Self Pay	Carotid Endarterectomy	% Self Pay
NHMH ^a	58,138 ^b	13	326 ^{cd}	3
2	28,207 ^e	5	416 ^{ef}	1
3	57,712 ^g	17	246 ^f	5
4	70,020 ^d	11	297 ^{cd}	1
5	66,395 ^d	12	102 ^f	4
6	63,396 ^d	15	526 ^f	3
Total	343,868	13	1913	2

a. New Hanover Memorial Hospital

b. 84-9/86

c. 1, 2, and 3 patients, respectively, excluded due to unknown payment status.

d. 84-86

e. 1986 only

f. 83-85

g. 84-8/86

Table 4

Payment Status of Carotid Endarterectomy by Race

Hospital	Percent Self Pay			
	Black		White*	
NHMH ^a	3/21	(14%)	5/305 ^e	(2%)
2	0/14	(0%)	3/402 ^e	(1%)
3	3/24	(13%)	8/222	(4%)
4	1/23	(4%)	1/274 ^e	(0%)
5	1/5	(20%)	3/97	(3%)
6	0/4	(0%)	13/522	(3%)
Total	8/91	(9%)	33/1822	(2%)

a. includes "other" race

b. New Hanover Memorial Hospital

c. 1, 2, and 3 patients, respectively, excluded due to unknown pay status

ence to be due to a high incidence of these aneurysms in white men. However, no differences were found in the incidence of abdominal aortic aneurysms among black women, white women, and black men. This is not the case with carotid vascular disease. The racial difference in the incidence of carotid endarterectomy is still apparent when comparing black men to white men or black women to white women. These differences suggest a racial predisposition regarding the distribution of atherosclerotic cerebrovascular disease.

Our data lend support to the concept that carotid disease in blacks tends to be intracranial rather than extracranial. Only 5% of patients undergoing carotid endarterectomy were black. This figure is consistent with the national frequency of carotid endarterectomy in blacks.¹⁰ It does not appear that blacks were denied access to health care, because although blacks were under-represented among the carotid endarterectomy patients, they were equally represented among all hospital discharges. Pay status does not appear to selectively exclude black patients from carotid endarterectomy, because significantly more black than white carotid endarterectomy patients were in the self-pay category. However, this difference may represent an older population with a higher percentage of medicare/medicaid patients.

Conclusion

The very low representation of blacks among patients undergoing carotid endarterectomy supports the concept that the extracranial atherosclerotic pattern of vascular disease amenable to carotid endarterectomy may be a racial and/or genetic feature. This premise is consistent with previous studies which have described the distribution of more intracranial disease in blacks and more extracranial vascular disease in whites.

The implied difference in the location of cerebrovascular disease and the relatively small numbers of carotid endarterectomies performed in blacks may be of concern in surgical educational programs where the population served is largely black: special efforts may be required to assure adequate operative experience for the surgical resident in performing carotid endarterectomies. □

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Retroperitoneal Fibrosis

The Forgotten Connective Tissue Disease

Gary S. Gilkeson, M.D., Carl W. Christensen, M.D., Ph.D., and John R. Rice, M.D.

Common complaints in medical practice usually turn out to be caused by common problems. Some of the challenge in medicine occurs when this is not the case.

Our story is that of a 38-year-old black woman who went to her gynecologist with a three-month history of poorly localized low back pain and a one-week history of painful swelling of the left leg. Her past history was remarkable only for an uncomplicated vaginal hysterectomy done 15 years previously for cervical dysplasia. There was no history of malignancy, and yearly followup examinations, previous to the onset of back symptoms and leg swelling, had been unremarkable.

A poorly defined mass was felt on pelvic examination and the remainder of the physical findings were remarkable only for left lower extremity pitting edema. Laboratory studies were normal other than a hemoglobin of 10.2 gms% and a Westergren sedimentation rate of 110 mm/hr. An antinuclear antibody test and rheumatoid factor were negative. Venography of the left leg demonstrated deep venous thrombosis.

The patient was hospitalized. Computed tomography (CT) scanning of her abdomen and pelvis revealed a soft tissue mass (figure 1a) extending from the aortic bifurcation to the pelvic brim with encasement of the iliac arteries and veins. The ureters appeared to be encompassed by the mass, but intravenous pyelography showed no ureteral obstruction or displacement. CT-directed aspiration biopsy of the mass was not diagnostic. Barium studies of the large and small bowel were negative.

Exploratory laparotomy exposed a fibrotic mass involving the area as seen on the CT scan. Multiple biopsies showed inflammatory fibrous tissue with areas of venulitis and arteritis of medium-sized arteries (figure 2). There was no

evidence of infection, granuloma or malignancy. The pathological diagnosis was idiopathic retroperitoneal fibrosis, and the patient was started on 60 mg/day prednisone and anticoagulated. After six months of therapy with gradually tapering dosages of corticosteroids the patient was clinically well. Repeat CT revealed a significant reduction in size of the periaortic mass (figure 1b).

Epidemiology

Retroperitoneal fibrosis (RF) was first described by Alvaran¹ in 1905 but did not appear in the English literature until Ormond's report of two cases in 1948.² There are now over 500 reported cases. The disease appears most frequently in men in the sixth decade of life and is unusual in patients over 70 or under 20 years of age.³ Only a few cases have been reported in children.⁴ The incidence of RF is unknown, but the disorder is uncommon and frequently overlooked in the differential diagnosis of back and abdominal complaints. The diagnosis was made quickly in our patient largely because she went initially to her gynecologist and, as a result, had a pelvic examination early during the course of her evaluation.

Clinical Findings

The clinical picture of RF is relatively nonspecific. As was the case in our patient, the most common initial symptom is low back pain. The pain is usually insidious in onset, poorly localized and rarely incapacitating. Flank and/or abdominal pain, equally nondescript, may also occur.³ Other presenting complaints may include weakness, nausea, vomiting, malaise, and oliguria.³ Physical findings, like the symptoms of RF, are minimal, nonspecific and seldom specifically suggest the diagnosis. An abdominal or pelvic mass may be found and fever develops occasionally. Peripheral edema, if present, occurs as a result of either extrinsic venous obstruction or thrombosis.

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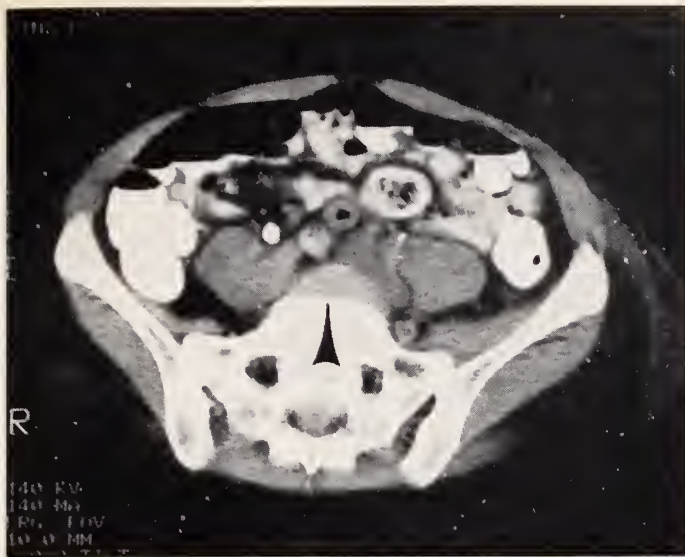


Figure 1a. CT of the pelvis showing a periaortic soft tissue mass at the time of diagnosis (arrow).

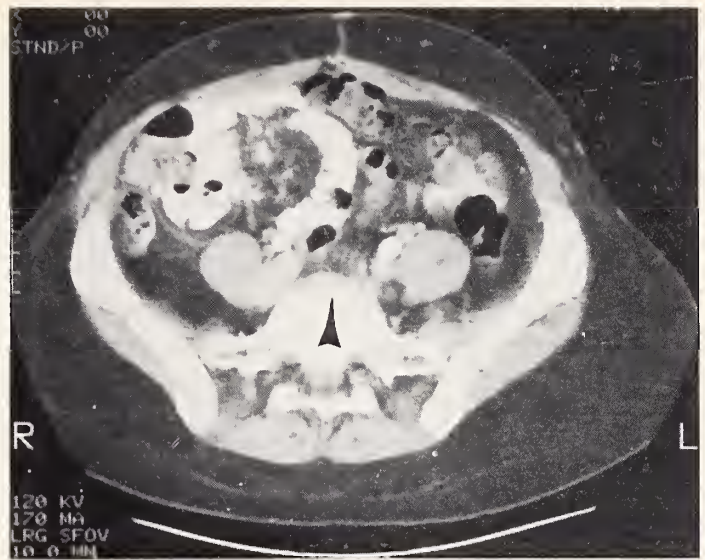


Figure 1b. Repeat CT demonstrating decreased size of the mass after six months of prednisone therapy (arrow).

Laboratory abnormalities primarily reflect either systemic response to inflammatory disease or impairment in renal function. Over 50% of patients present with azotemia, and a substantial number of patients will also have mild anemia and/or an elevated sedimentation rate. Approximately 25% of patients will have completely normal laboratory profiles.³

A presumptive diagnosis of RF is usually made radiographically. The classic diagnostic finding prior to the advent of CT was hydronephrosis with medial deviation of the ureters seen on an intravenous pyelogram. A periaortic soft-tissue mass displacing the ureters and encasing the iliac vessels, seen on abdominal CT, is now the most suggestive radiographic finding.⁵ Once the diagnosis is suspected, adequate biopsy specimens are required for diagnosis since infection or malignancy can produce a similar picture. A substantial number of cases require additional surgery to free the ureters or iliac arteries.⁶

Pathology

The gross pathology of retroperitoneal fibrosis consists of a periaortic fibrous mass, normally not extending above the renal arteries or below the pelvic brim. At the bifurcation of the aorta, fibrosis tends to follow the iliac vessels but does not tend to extend very far laterally. The ureters are often drawn medially but rarely enveloped by the fibrotic process. When fibrosis does extend beyond the aortic axis, it normally is contiguous with the area of periaortic involvement and extends along major vessels. Anterior extension is very rare.⁷

At the time of initial biopsy, approximately one-third of patients will have specimens which show only bland, avascular, often calcified, fibrotic tissue devoid of inflammatory infiltration. In the other two-thirds, the fibrosis is interspersed with small blood vessels and a cellular infiltrate

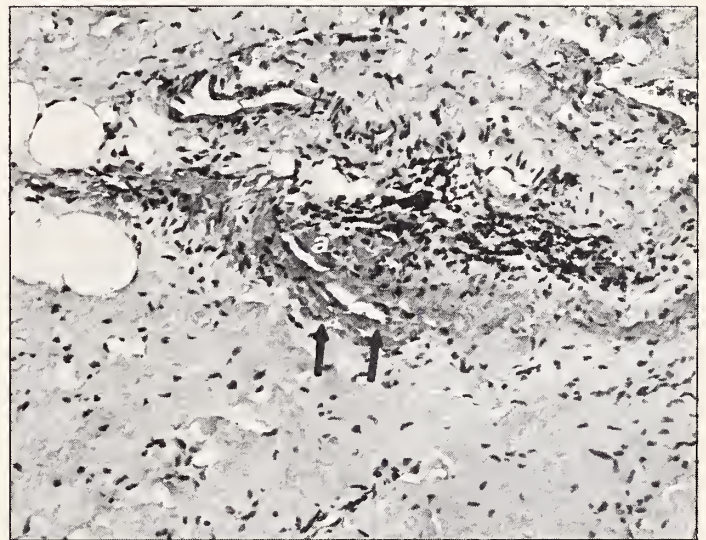


Figure 2. Biopsy specimen showing fibrosis with perivascular and intramural infiltration of inflammatory cells involving a medium size artery (arrows).

consisting primarily of lymphocytes and plasma cells. Venulitis will be found in about one-half of the biopsies which show an inflammatory component, and 10% of inflammatory biopsies contain medium-size arteries demonstrating frank, necrotizing arteritis resembling polyarteritis nodosa.⁷

Reports of serial biopsies in a few patients have suggested a temporal progression from an early, inflammatory lesion to chronic fibrosis.⁸ Multiple, simultaneous biopsies taken from the same lesion may demonstrate active, inflammatory changes at the advancing periphery with more chronic fibrosis in the central portions of the lesion around the aorta.³ It is imperative that multiple, adequate biopsies be taken to exclude the presence of underlying infection or malignancy. Open, surgical biopsy is usually required.

Pathogenesis

The pathogenesis of RF is not known. There are no known animal models, and no systematic study of the pathophysiology of RF in humans has been undertaken. It has been suggested³ that vascular insult and/or leakage may play a primary role, since the disease process is exclusively located adjacent to vascular structures and the drugs putatively associated with RF all have vasoactive properties.

As shown in table 1, the majority (70%) of cases of RF are idiopathic.⁹ Approximately 12% are associated with the use of medications, primarily ergot alkaloids and beta-blockers. Another 10% of cases are associated with malignancies, either primary retroperitoneal sarcoma or metastases from breast, lung or other common tumors. RF has occurred as an unusual complication of Crohn's disease, abdominal abscess, and retroperitoneal hematoma. Infectious etiologies of RF are rare and include tuberculosis and histoplasmosis.⁹ Isolated cases of RF have been reported in scleroderma,¹⁰ systemic lupus erythematosus,¹¹ Wegener's granulomatosis and polyarteritis.⁷ The incidence of Reidel's thyroiditis, mediastinal fibrosis and retro-orbital pseudotumor is thought to be increased in patients with RF.¹²

Therapy

RF is a potentially reversible, highly treatable disease process. There have been no reports of controlled therapeutic trials, but there are numerous case reports of excellent and sustained response to reasoned management. Most authors suggest the use of corticosteroids coupled with surgical relief of ureteral or vascular obstruction. Reported treatment protocols vary from three to six months in duration and generally suggest the use of prednisone starting at a dose of approximately 1 mg/Kg per day. The erythrocyte sedimentation rate and repeat CT scanning are useful in assessing disease activity and response to therapy. In an uncontrolled series reported by Wagen-Knecht, patients treated with

surgery plus prednisone had a better outcome than patients treated with surgery alone.¹³ Of the patients in his series with no initial indications for surgery, 90% required no subsequent intervention other than the use of corticosteroids. There have been several case reports of the successful use of cyclophosphamide or azathioprine in patients with disease refractory to prednisone or in those cases associated with vasculitis.^{14,15} It is unclear from the literature whether patients with a paucity of inflammatory disease on biopsy will respond to treatment. Drug-related fibrosis often responds to simple discontinuation of the offending drug.¹⁶ Cases associated with infection or malignancy often improve with treatment of the primary disease.⁶

Excluding cases associated with malignancy, the overall prognosis of RF is good. In one series the cumulative mortality was only 9%.³ With aggressive medical and surgical therapy, idiopathic RF can almost always be controlled to the extent that long-term morbidity and mortality are very low. □

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Table 1. Etiologies of retroperitoneal fibrosis

1	Idiopathic	70%
2	Drug Associated	12%
	a. methysergide	14%
	b. beta blockers	18%
	c. methyl dopa	19%
	d. hydralazine	20%
	e. analgesics	21%
	f. ergot alkaloids	22%
3	Malignancy	10%
4	Other	8%
	a. Retroperitoneal inflammation	
	b. Infection	
	c. Connective tissue disorders	

Alcoholism Treatment

Cost and Effectiveness Favor Ambulatory Programs

Bernard Ferencik, Ph.D., and Roy J. Mathew, M.D.

Alcoholism makes its presence felt in different ways in the over 10% of Americans who suffer from it. Alcoholism and alcohol abuse are intimately related to some of the major social and medical problems facing our country. It is a leading factor in road traffic accidents, domestic violence, child abuse, criminal behavior, absenteeism and the breakup of families. Alcoholism leads to a wide variety of physical problems ranging from cirrhosis of the liver to carcinoma of the breast, from cardiomyopathy to brain damage. It is often associated with a variety of psychiatric disorders and is a leading cause of suicide. Alcoholics are frequently seen in various outpatient clinics, and approximately 20% of all admissions to general hospitals are alcohol related. It is obvious that effective treatment of alcoholism is a matter of great significance.

Indeed, large numbers of alcoholism treatment units have been established and a variety of treatment models have been proposed. The most popular treatment is intensive inpatient care given over a period of four to six weeks. Hospitalization is expensive and naturally inpatient treatment of alcoholism tends to be very costly. In 1977, the costs of treating alcohol abuse were about \$4 billion nationally; by 1986 these costs had risen to over \$10 billion. In the present climate of growing concern over health care expenses, cost-effectiveness of alcoholism treatment is a topic of paramount significance.

Although the available research provides ample clues on reducing the expense associated with alcoholism treatment and on improving quality of care, clinicians and treatment centers have been slow to respond. The present article provides a summary of findings with direct clinical relevance. The observations put forth in this paper were made at a three-week day treatment program for alcoholics and drug addicts.

Alcoholism Treatment

The simplest definition of an alcoholic is a person who has lost control of the amount of alcohol he or she consumes. In spite of the dire aftermaths of excessive consumption, the alcoholic continues to drink heavily. There is no simple explanation for this malady; causation is believed to be multifactorial in nature. There seems to be general consensus among clinicians and researchers that once alcoholism has developed, return to social drinking is very difficult, if not impossible.

The best hope for the alcoholic is complete abstinence. In a society like ours where alcohol consumption is an integral part of day to day living, this is indeed a tough goal for the alcoholic. The vast majority of alcoholism treatment programs attempt to equip the alcoholic to lead a life free of alcohol in a world where availability and temptation are great.

Who Needs Treatment for Alcoholism

The single most powerful force in alcoholism treatment is Alcoholics Anonymous (AA), and it continues to be the brightest beacon of hope for the alcoholic. The twelve steps of AA help the alcoholic to come to grips with the past and develop a better outlook for the future. Recovered alcoholics share their experiences with newcomers and help them in their recovery. Camaraderie and compassion characterize the AA community. Large numbers of alcoholics recover through AA without any additional help. An alcoholic who wants to overcome his or her problem should go to AA first. Treatment programs should be reserved for individuals who cannot recover through AA alone.

Common Ingredients of Alcoholism Treatment

There is general agreement that alcoholics need to be constantly reminded of their vulnerability. Treatment programs help the individual come to terms with the past, address

factors which led him or her to excessive drinking in the past and might do the same in the future, provide information about alcohol and alcoholism, and introduce him or her to self-help groups which provide support and strength. Group therapy is the cornerstone of most treatment programs; individual counselling, family therapy, and educational sessions are the other important ingredients. Usually, treatment is provided on an inpatient basis. Although this model was developed a number of years ago and practiced by the majority of treatment centers all over the country, its effectiveness has only recently been evaluated.

Predictors of Success

In general, success in treatment for an addiction problem is determined less by the form of treatment itself than by the characteristics of the patient. Patients with stable marriages, fewer years of problem drinking, and a short history of heavy drinking are more likely to succeed in treatment, regardless of the modality.¹ Individuals who are better motivated, with relatively stable personalities, tend to do better in all types of treatment programs. Similarly, people with understanding and supportive employers, family, and friends will be more successful than others. Patients with psychiatric problems in addition to alcoholism or drug addiction also need to receive psychiatric care.

A variety of social, psychological and biological factors are related to alcoholism. Some predate alcoholism, while others develop as consequences that reinforce the habit. The nature and extent of these factors will vary from patient to patient. Alcoholism treatment is not a monolithic entity, and the quality of any program rests mainly upon its ability to recognize and deal with these various problems.

Two Important but Often Neglected Factors

Research has consistently shown a close association between alcoholism and psychiatric disorders. Disorders of mood, anxiety and personality are psychiatric disorders which often accompany alcoholism. A great deal of progress had been made in the diagnosis and treatment of these disorders. Often, with abstinence and participation in the traditional treatment program some of these problems will be resolved.

However, significant numbers of patients suffer from major psychiatric problems which are overlooked and/or inadequately treated. This increases the risk for relapse. Mood disorders and anxiety which predated alcoholism are unlikely to respond to psychotherapy alone. Long-term outpatient psychotherapy is needed for the treatment of serious personality disorders. It needs to be pointed out that the suicide rate is high even in recovered alcoholics, suggesting the presence of untreated psychiatric conditions.

The high incidence of physical illnesses in alcoholics is

well documented. However, physical health is inadequately addressed in many programs. Many alcoholism treatment facilities have inadequate medical and laboratory support and attention paid to physical illnesses is limited to a cursory physical examination. Undiagnosed and improperly treated physical complications increase the risk for relapse and can, at times, be life-threatening.

How Necessary Is Hospitalization?

In a careful review of the research literature, Miller and Hester² cite a number of studies comparing success rates among a variety of treatment forms. This review of 26 studies with adequate controls leads to the conclusion that there is no real advantage to inpatient treatment in spite of its significantly higher cost. In particular, they note ten studies that used a random sample of patients and adequate controls for potentially confounding variables. In all of those studies, patients received inpatient care ranging from three to nine weeks in length, and outcome results were compared with patients who received outpatient or day treatment care. Follow-up generally was done at six months, 12 months, and in some studies at 24 months. Miller and Hester report that there were no significant differences between all inpatient and outpatient treatment methods on a number of measures of outcome including amount of alcohol consumed, length of abstinence, health, and employment reliability.

There were, however, two exceptions to what they anticipated: in two studies patients in outpatient programs did better than those in inpatient programs. Wilson et al³ compared 45 alcoholics receiving inpatient treatment with 45 others sent to outpatient programs. At five months of follow-up, the patients in the outpatient programs were doing significantly better in the reduction of their alcoholism symptoms, overall adjustment, and measures of self-esteem. These differences, however, were not significant at 15 months. Smart, Finley, and Funston⁴ also compared a group of patients receiving inpatient treatment with those in outpatient care. They found that after six months only 25% of their inpatient sample was successful compared to 50% receiving outpatient treatment. A number of studies also note that among patients receiving inpatient care there is a higher rate of subsequent use of hospitalization. Inpatient care apparently tends to condition patients toward using these more expensive forms of treatment as future problems develop.

Miller and Hester conclude in no uncertain terms that they believe serious consideration should be given to reevaluating our current delivery system for addiction problems: "No study to date has produced convincing evidence that treatment in residential settings is more effective than outpatient treatment. To the contrary, every study has reported either no statistically significant difference between treatment settings or differences favoring less intensive settings."² (p.802.)

In spite of the unequivocal findings of similar, if not

better, results for the outpatient programs and a substantial reduction in expenses, the vast majority of facilities continue to offer inpatient care. Also, third party carriers provide better coverage for inpatient programs. The notion that inpatient care is superior is based largely on myth, fallacy and dogma. The following is a discussion of some common concerns about outpatient programs.

1 Intensive outpatient programs comparable in structure to inpatient programs cost much less.

Patients come to our day program by 8:30 a.m. and leave by 4:30 p.m. The program is comparable, if not superior, to inpatient programs in terms of the duration of group and individual psychotherapy sessions, qualifications of therapists (minimum, master's level degree in a behavioral science), and staff-to-patient ratio (maximum, 1:3); the only difference is that the patients sleep at home instead of in the hospital. Our day program costs less than 50% of the fee for the least expensive inpatient program in this area.

2 Alcoholics are too sick to be outpatients.

This is true of a minority of patients either with severe withdrawal symptoms or with concomitant physical or psychiatric disorders. Even these patients can be discharged in a few days and they continue as day patients without any problems.

3 Alcoholics prefer to be hospitalized.

Not true. Many patients prefer to come as outpatients. However, those who are in considerable distress when they initially come to the program need to be in the hospital. After a few days of inpatient stay, they then come as outpatients.

4 The patients will start drinking while they are outpatients.

Drinking and drug taking by patients are problems for both inpatient and outpatient programs. This might seem more likely in the latter, since the patients have more freedom and are tempted to a greater extent in outpatient settings. Although occasional lapses do occur, uncontrolled drinking during treatment has been very rare. Frequent random drug screens serve as deterrents. Relatives of patients are also of help in this regard. It needs to be pointed out that the patients will ultimately have to learn to handle personal freedom in a world where temptation to drink is constantly present. Circumstances which lead to such behavior are analyzed and discussed in group therapy sessions, and better coping techniques are recommended.

5 Patients and families will not take the problem seriously if they are treated as outpatients.

Our experience has been to the contrary. Since the patients

spend evenings and weekends at home with their families, the family involvement becomes more meaningful. Ongoing issues with families are more frequently brought up in group therapy sessions. The patients are required to attend AA meetings on their own, which increases the likelihood of continuation of the practice after discharge. The patients also are exposed to the temptation to drink while they are in treatment and are able to discuss these temptations with their counselors and in group therapy.

6 Families need a break.

This is true in a few instances. But only a few need a break in excess of three weeks. Families tend to lose contact with patients if they are separated for long periods of time. Families will have a harder time adjusting to the "changes" in the patients if the patients return home abruptly after several weeks of hospitalization.

7 It will be difficult for out-of-town patients to participate in outpatient programs.

We have treated several patients from other states. Even the most expensive hotels cost substantially less than hospitals! All of the patients who went through our program unquestionably preferred hotels to hospitals. Eating in restaurants where drinks are offered before meals, staying in hotels where alcoholic beverages can be ordered through room service and having the freedom to go out and buy liquor while in treatment strengthen their ability to deal with these situations in the future.

8 Patients with severe problems need inpatient treatment.

This is true of patients whose concomitant psychiatric or physical conditions independently justify hospitalization. As was pointed out earlier, none of the 26 studies found any evidence that patients with "severe" uncomplicated alcoholism respond better to inpatient care.

Discussion

Recent years have seen a sharp increase in the public awareness of alcoholism and its consequences. Large sums of money are being spent on alcoholism research and treatment at federal and local levels. Significant progress has been made in our understanding of the causes and manifestations of alcoholism. Research has uncovered ways and means of improving the quality and decreasing the cost of alcoholism treatment.

Causes and consequences of alcoholism vary widely from individual to individual and, therefore, treatment programs need to be flexible. Quality of a program is determined by its ability to address the multiple facets of alcoholism.

Alcoholism frequently coexists with psychiatric disorders, and large numbers of alcoholics also benefit from psychiatric treatment. Psychotherapies form the framework of alcoholism treatment. Thorough physical examinations and laboratory testing with emphasis on common physical complications of alcoholism are absolute requirements for a good program.

It is clear that the most important predictor of success is the patient and not the program. Duration of the program or intensity of treatment does not necessarily influence the outcome significantly. Regardless of the type of treatment, relapses are frequent and repeat treatment often necessary.

There is a certain intuitive appeal to the notion that both the more intensive the treatment and the more protected the environment, the greater the likelihood of success. However, this does not seem to be the case. Over 26 studies which compared inpatients with outpatient treatment have failed to reveal any significant differences between the two; as a matter of fact, outpatient treatments were found to have several advantages.

If there is a key to understanding the recovery process it probably rests in the fact that very little real and lasting change occurs during the intensive phase of treatment, whether it be inpatient or outpatient treatment. During this phase of treatment, problems begin to be defined, family dynamics may begin to change and new habits and insights may emerge. The crucial factors in recovery are participation in an outpatient aftercare program⁵ and the circumstances of a person's life, i.e., whether they have supportive relationships, gainful employment and can find enjoyment in life's experiences.⁶ Individual and family problems identified during the intensive phase of the treatment may require continued treatment on an outpatient basis.

In general, the burden of empirical data would suggest that outpatient treatment for alcoholism is much less expensive and at least as effective as inpatient care. Although there are some patients who may need a short period of hospitalization prior to this form of treatment, the large majority of individuals with an alcohol or drug addiction seem to benefit from day treatment. Day treatment, in fact, has a major advantage over inpatient treatment in that it minimizes the development of false confidence and can engender in patients a greater commitment to aftercare—a critical component in recovery. □

Outpatient Programs in North Carolina

Duke Alcoholism and Addictions Program
Civitan Building
Box 3074
Duke University Medical Center
Durham, NC 27710

Randolph Clinic/Alcoholism Treatment Center
100 Billingsby Rd.
Charlotte, NC 28211

Open House
145 Remount Rd.
Charlotte, NC 28223

Amethyst Treatment Center
P.O. Box 240516
Charlotte, NC 28224

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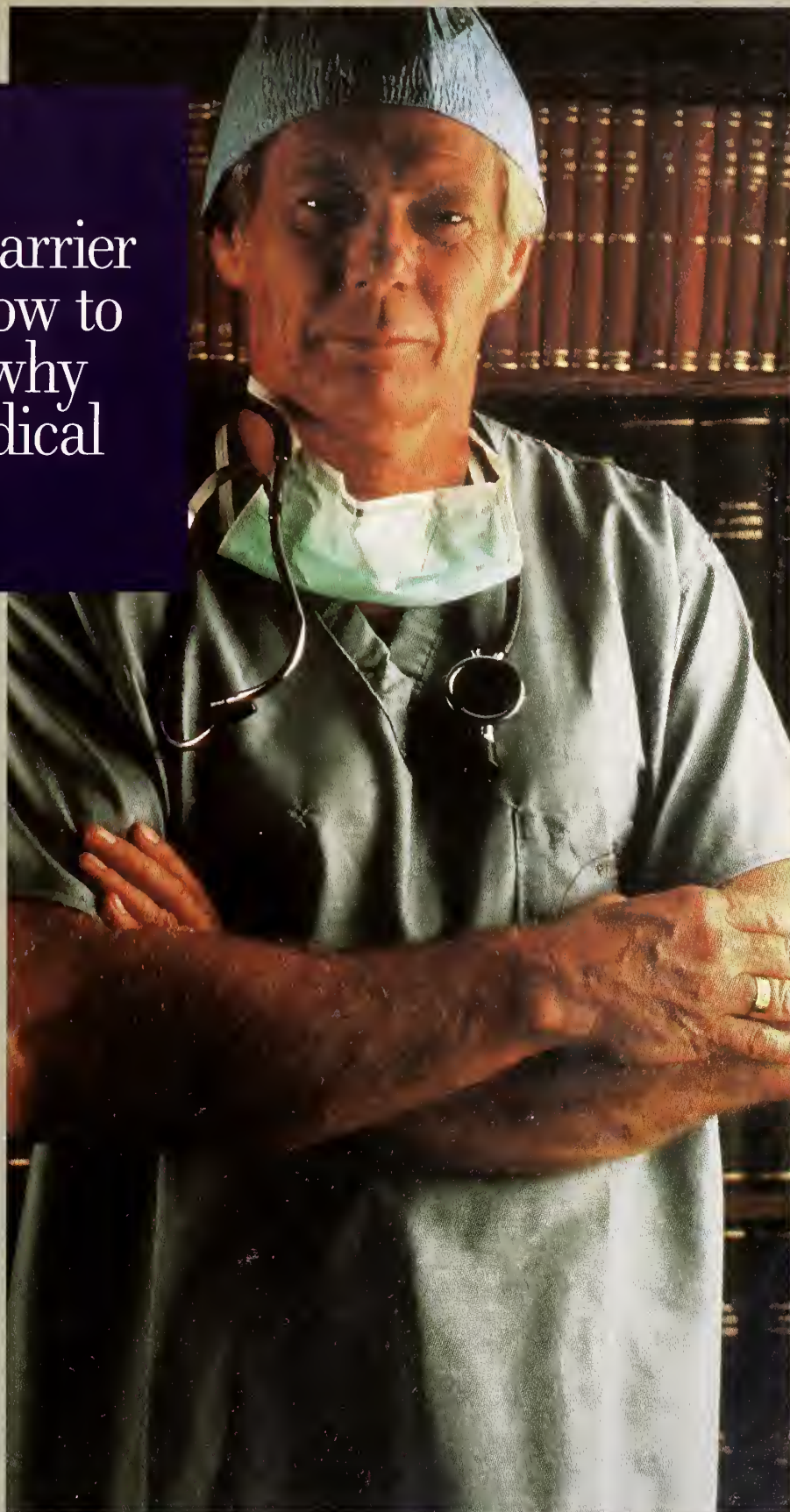
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Medication Dispensing: Is It for You?

Clyde Alexander, Ph.

Physician dispensing reached an all-time low in 1986 with less than 1% of the physicians in the United States dispensing medication from their office. This was a marked change from 1923 when as many as 39% of physicians dispensed medication. The world and its socioeconomic structures have changed much since 1923.

The major change in physician dispensing occurred after World War II and was brought on by an increasing urbanization of the United States. Before World War II, much of the United States was rural with many physicians located in remote areas. Physician dispensing was an absolute necessity; that was the only way a patient could obtain medication. There were few community pharmacies, but there were also few potentially dangerous medications. As the nation developed industrially and as urban areas spread, bringing easier access to pharmacies, the need for the physician to dispense diminished. The advent of new technologies in medication development also brought on the need for tighter controls on medication. 1951 brought us the Durham-Humphrey amendment, which required prescriptions for medication. Before this amendment, only medications containing poisons or narcotics required prescriptions.

In the two years between 1986 and 1988, physician dispensing increased to as much as 15%, and many physicians see a benefit from the practice. If the repackagers' dreams come true, as many as 50% of physicians in the United States will be dispensing within the next decade. Whether this rapid increase will occur remains to be seen, but there is considerable interest in physician dispensing.

It might be well to note that I have a built-in bias when it comes to physician dispensing. Having been the chief pharmacist in the Department of Family Medicine's Family Practice Center of East Carolina University School of Medicine for the past five years, and a community pharmacist for 20 years before, there may be some coloring of my

opinion. Despite a tendency toward the negative, I will attempt to be as objective as possible in dealing with the topic of medication dispensing by the physician. I will cover four rather broad subjects: some of the laws affecting physician dispensing; a few of the controversies surrounding the topic; the repackaging companies' offer; and the use of "sample" medications in the office.

The Legal Climate

The laws governing physician dispensing vary considerably from state to state. Only five states prohibit it entirely, while three states allow dispensing by the physician with absolutely no restrictions. The remaining 42 states have a hodgepodge of regulations but allow dispensing.

North Carolina restricts dispensing by the physician to his or her own patients and mandates specific record keeping and prescription labelling requirements. In general, the physician must register with the Board of Pharmacy and must comply with all federal and state drug laws that deal with the practice of pharmacy. The North Carolina Board of Pharmacy will provide a handout, on request, to physicians who wish to dispense.

The one provision which many physicians might overlook is the requirement for "immediate supervision," which states that the dispensing of medication is not a task which may be delegated, unless the licensed practitioner is immediately supervising the activity. This would imply that a physician cannot assign the duty of dispensing medication to anyone else unless he or she (the physician) is physically present. This provision could present problems when a patient requires a refill of medication.

Recently, in the United States House of Representatives, Rep. Ron Wyden (D-Oregon) sponsored an amendment (H.R. 2168) to the Federal Food, Drug and Cosmetic Act that would have prohibited physician dispensing of any oral medication for profit. There were exclusions to his amendment, but the implications were not pleasing. It is my current understanding that this amendment is dead in committee.

From Family Practice Center, East Carolina University, Greenville 27858-4354.

Areas of Controversy

Representative Wyden's amendment, along with other discussions, have created several areas of controversy. The arguments against physician dispensing are based primarily in four areas: conflict of interest; the physician as competitor; ethical problems; and patient convenience.

First, conflict of interest presents an interesting discussion and probably the strongest argument against physician dispensing. If a physician dispenses and is depending upon income from that activity, will he or she have a tendency, albeit an honest one, to over-prescribe in the interest of an increased profit? Will there be the inclination to prescribe medication that is in the physician's stock, even though it might not be the appropriate choice? The argument continues that the activity might also limit the patient's freedom of choice, since a patient might be intimidated by the physician's authority, assuming there is no other choice but to have the physician supply medication.

Second, dispensing medication may demean the medical profession by making the physician a competitor in a trade related market. If the physician does enter this market, is he or she more than a merchant in a competitive market? Can the physician, as a merchant in this scenario, maintain the status of professional?

Third, dispensing will only compound ethical problems. The medical profession has had its image problems in the last few years; does it need more? Will the repackager's promise of an additional 20 to 50 thousand dollars in annual income present more ethical temptation that could be avoided?

Fourth, is patient convenience really considered when a physician dispenses? Obviously, it might be more convenient for the patient to receive medication on an initial visit, but what about the refill on that medication? Pharmacists spend as much as 60% of their time refilling medications; is the physician willing to devote a proportional amount of time to patient medication refills, or will those refills be scheduled around a patient's visits? Realizing that the dispensing physician must immediately supervise the dispensing of medication, what is to be done when a patient needs a medication refill and the physician is too busy to accommodate? How convenient is that for the patient?

Incentives to Dispense

The arguments in favor of physician dispensing are equally forceful, and they too center around four major points: the patient's freedom of choice; restriction of the physician's right to free enterprise; the need for a financial edge; and strong medical ethics.

First, if a physician dispenses medication, then the patient is offered a greater freedom of choice of locations for medication purchases. This does offer some advantages. The patient has the freedom of choosing who will provide medication, the physician or the pharmacy; and competition is introduced, thereby reducing the patient's medication cost.

In a prescription market in which the average prescription costs the patient more than \$16, increased competition from the physician can but reduce the cost. Everyone knows the basics; increased competition reduces prices.

Second, what right does either a state or the federal government have to impose regulations restricting the physician's right to free enterprise? The physician, like every other citizen in the United States, has certain rights. A restriction of those rights is not justified just because the individual happens to be a physician. The physician is the provider of medical care, and, with that initial knowledge, should have the free enterprise right to continue therapy by dispensing if he or she so desires.

Third, the number of physicians is increasing. If we believe some of the reports, in the next few years physicians, metaphorically speaking, will be more plentiful than stars in a winter's night sky. An increased number of physicians brings on increased competition. Anthropologist Desmond Morris implied that higher population concentration brings increased hostility. Therefore, with fiercer competition and increased hostility (turf jealousy), the physician needs every financial edge. Dispensing is one way to ensure that financial edge.

Fourth, medical ethics already resides in good hands. Physicians are capable of handling their own ethical problems and do not need state and federal regulations. In addition, the consuming public will not stand for being treated unethically or unfairly by a physician. That public will not patronize a physician who does not use proper treatment or provide proper medication. Furthermore, physicians are already under strong regulations by professional organizations and state laws. No more are needed.

There are, obviously, many more arguments, both pro and con, on the subject. The feelings run very high depending on one's side of the fence. What it all boils down to is that a rational physician who considers dispensing medication must face a multitude of difficult decisions.

The Repackagers

Having looked at some of the arguments surrounding dispensing by the physician, let's look at the offers made by the repackagers. The repackaging industry has grown in recent years. There are now approximately 100 such companies.

The companies offer a wide menu of drugs from which to choose, aid in making the proper selections, and assistance in deciding on the proper quantity to order. The physician must then decide on the fee to charge, which should range from \$2.50 to \$5 (the fee is charged the patient in addition to the cost of the medications, and represents the profit). If the physician then issues 1.2 prescriptions per patient and sees 5,400 patients per year (115 per day), resulting in 6,480 prescriptions, dispensing 50% of the medications with a fee of \$3 each will result in gross profit of \$9,720 annually ($6,480/2 = 3,240$ prescriptions \times \$3). An 80% dispensing rate

would yield \$15,552 annually. The figures are impressive.

The repackager provides an inventory control and record-keeping system plus a prescription labelling system. They also recommend a limited variety of drugs. In addition, there is a full 30-day dating on the medication order, and the repackager claims that the physician most likely will have dispensed the initial order before the bill comes due; thus the physician can begin medication dispensing at no initial cost. The repackagers also claim that the cost of the medication to the patient is less than it would be in a community pharmacy and that it is more convenient for the patient.

One suggested package in a Family Medicine sample order contains 36 non-injectable and eight injectable medications. If a single item of each were purchased, the cost to the physician would be \$238.69. Obviously, no one would buy one of each, so if we multiply that \$238.69 by six of each, we would have a total of \$1,432.14 for an initial order. The order is heavily salted with generic drugs, the brands of which are not given; however, for ease of recognition the drugs are listed by brand name with a footnote indicating that generic will be provided. A cross reference is also provided. The package offers a good variety of commonly used drugs which may be adjusted to the individual's need.

Two problems arise that are not indicated in the repackager's information and should be discussed. First, the physician must be very careful concerning collection. A 10% loss, for instance, on that initial order of \$1432 could result in a reduction of the gross profit by approximately \$222. If we use a fee of \$3 per prescription for each of the 36 oral and eight injectable items, and we ordered six of each, we would have a fee of $36 + 8 = 44 \times 6 \times \3 or \$792 (the profit), plus the drug cost of \$1432, resulting in a total charge to the patient of \$2,224. If 10% of that were not collected, then there would be a reduction in gross income of \$222. That would result in a gross profit of \$792 minus \$222, or \$570, out of which the physician's time and service must be considered. It is easy to see that dispensing might conceivably be a financial liability unless charges are collected, without fail, at the time of dispensing.

The other problem is that the repackagers' claim of supplying medication which is less expensive for the patient is just not true. Most drug repackagers do offer mainly generic drugs, but those same generic drugs are available to everyone. If the repackager could offer drugs to the physician at a lower cost, is it not likely that pharmacies would be clamoring to buy from those same repackagers? That has not happened; most pharmacies are satisfied with their current purchasing arrangements. As a matter of record, some of the medications offered, at cost, to the physician by the repackager, are less expensive to the patient, at retail, from a community pharmacy.

The Issue of Samples

The last item to look at is "sample medication." Samples have been around as long as drug companies and probably will continue to be around as long as drug companies.

However, a recent Congressional act of major overkill has muddied the waters considerably. The Prescription Drug Marketing Act of 1987 (Public Law 100-292) has created confusion about the use, acquisition, and storage of manufacturers' samples. The law has two provisions which may affect the physician's office. First, it imposes criminal penalties on the sale, purchase or trade of any prescription drug sample or coupon for the acquisition of drug samples. Those penalties may be up to 10 years in prison and a \$250,000 fine. Second, the law places restrictions on how drug samples may be distributed by the manufacturer. The manufacturer may distribute drug samples upon the written request of a physician and the physician must execute a written receipt, which must be returned to the manufacturer. To simplify the situation, drug manufacturers supply their representatives with special receipts to document distribution of drug samples.

What affect the Prescription Drug Marketing Act of 1987 is going to have upon the use of "sample medication" is anyone's guess. My recommendation, at present, is that the physician should insist that the manufacturer's representative leave a copy of the sample request form. The physician should keep these copies for future reference.

The use of samples has long been debated. We are talking here about a multi-million-dollar industry. Whether the amount of money spent on samples is justified is questionable. Perhaps that money could be used to better effect elsewhere. But samples are a fact of physician life and therefore should be used. From the narrow point of view, samples are intended to sell pharmaceuticals. The logic is that if a physician uses a sample and recognizes a significant benefit, he or she will continue to use the medication and will write prescriptions for it.

From a broader perspective, the physician might consider some advantages from samples. First, prescription medication is not inexpensive, especially to the poor patient or the patient on a fixed income, notwithstanding the argument that outpatient use of medication may prevent even more expensive hospital treatment. Samples could be used to help a patient avoid purchasing a larger supply of medication than is usable (most pharmacies will not refund for unused portions of prescription medication, considering them contaminated). The physician could use sample medication to determine the patient's tolerance. Second, one look at the NSAID market indicates that there is tremendous overlap in drug marketing. Although each of these drugs is similar, patient response sometimes varies. Samples might be used to determine a desired course of attack.

Samples present one last problem to the physician. Samples are prescription drugs, and by virtue of being prescription drugs, come under the same state and federal laws governing all prescription drugs. If a sample is a non-controlled substance, the physician should chart the dispensing of the medication. If the sample is a federally controlled substance, i.e., having the federal "C" with a Roman numeral on the package (CII, CIII, etc.), the physician must, according to federal laws, keep records of the

receipt and dispensing of those drugs for a minimum of three years, and those records must be kept in a readily retrievable manner. The controlled sample medication must also be dispensed to the patient—no matter how it is provided to the physician—in a safety closure container and properly labeled. An investigation by a state or federal authority, although a remote possibility, can be a major headache for which no sample medication is available.

Conclusion

Physician medication dispensing is a hot item among pharmacists, but the opposite appears to be the case with physicians, as very little literature exists which gives the physician's viewpoint. Perhaps pharmacy feels more threatened by the prospects of physician dispensing. The specter of 50% of physicians dispensing their own medication does threaten the economic fabric of pharmacy practice.

The physician who does decide to dispense must face some hard decisions and should realize that although there may be added value to his or her practice, the picture is not as rosy as that painted by the repackager. There are pitfalls which can be costly. It is still the physician's decision "to dispense or not to dispense" (apologies to the Bard), but he or she should make a truly objective, informed decision. □

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YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in *Rauwolfia Serpentina* (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

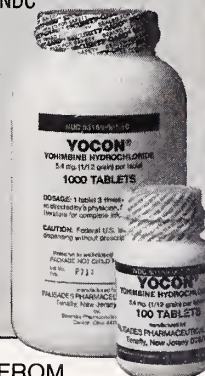
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon[®] 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

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Dinner with De Quincey

Loperamide Overdose

Ronald B. Mack, M.D.

Drug addiction is hardly a new idea and we must not "flatter" ourselves that this problem is unique to the latter portion of the 20th century. The great Victorian man of letters, Thomas De Quincey, wrote a classic book entitled *Confessions of an English Opium Eater*.¹

To put his addiction in its proper perspective, opium was readily available in England in the 1800s. No prescription was needed, supplies were plentiful and inexpensive, no laws were transgressed, and no public outrage was evident. De Quincey first began ingesting opium in 1804 for a "violent" neuralgia he suffered. He then proceeded to take the drug for gastric pain, anxiety, to ward off tuberculosis and just because he felt better when he took it, he felt euphoric, he felt "high." By 1813 he was taking it daily. The form of the opiate he used was laudanum, which was opium diluted with alcohol. Laudanum was the most common anodyne prescribed by doctors at the time, for infirmities of all kinds. It was introduced into medical practice around 1525,² by Paracelsus, and the rest is history, sad as it is.

Today it is relatively difficult to get an opiate legally. Continued use of this class of drugs is generally frowned upon by the medical profession and most of society. However, you can get at least one opiate-like drug, over the counter, relatively cheaply, that can cause a great deal of clinical adversity, if not taken correctly. The drug is loperamide HCl (Imodium AD), an antidiarrheal agent, frequently advertised on television. This medication is structurally similar to haloperidol and diphenoxylate³ (the major ingredient in Lomotil). The FDA Drug Bulletin recently remarked that this medication has been approved for over-the-counter sale in liquid form only⁴; loperamide capsules continue to require a prescription however. The liquid over-the-counter

form of this drug contains 1 mgm of loperamide HCl in a formulation containing 5.25% ethanol per 5 ml.

The use of loperamide in diarrhea relies on its pharmacologic action of slowing gastrointestinal motility by altering the action of the circular and longitudinal muscles of the intestine. It is now known that loperamide binds to opioid receptors in the intestine and part of its antidiarrheal activity may be due to activity at these receptors. Part of its antidiarrheal activity can be due to a reduction of gastrointestinal secretion produced by these actions at opioid receptors.^{5,6} Another biochemical mode of activity has been suggested recently relating to *calmodulin*.⁷ This calcium-dependent regulatory protein is considered to be important in the secretion of fluid and electrolytes into the lumen of the gastrointestinal tract. Those drugs that possess the ability to bind to and inhibit calmodulin, e.g., phenothiazine tranquilizers, apparently can reverse cyclic-AMP-mediated intestinal secretions in man. Loperamide apparently significantly inhibits calmodulin activity. Of further interest, opiates such as morphine, dihydrocodeine, etc., do not inhibit calmodulin, and naloxone will not reverse the inhibition of calmodulin by loperamide. Therefore, loperamide inhibits calmodulin independent of its opiate-agonist properties. This calmodulin concept sounds like good news to me and should stimulate pharmaceutical companies to produce new products for those patients riding the "porcelain pony."

Loperamide apparently is not absorbed very well and peak plasma levels are not achieved for as much as four hours post ingestion, possibly due to inhibition of gastrointestinal motility induced by the drug as well as an enterohepatic circulation of the drug.^{3,5} Clinical improvement, however, is usually seen within one to three hours. Elimination half-life is seven to 15 hours depending on whose study you are reading. Loperamide is excreted mainly in the stool and the rain in Spain is mainly on the plain; where do you expect it to be excreted, dog-breath, in the hair?

Early studies suggested that opiate-agonist activity does not occur with oral loperamide; however, this proved not to be the case, and opiate-like poisoning episodes have oc-

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curred, especially in children.⁶ Therefore it is reasonable to suspect loperamide overdose in patients presenting with the "narcotic triad," i.e., miosis, respiratory depression and coma. Miosis is not specific for narcotic overdose, however, and you must think of other toxins that can produce this sign, such as propoxyphene, barbiturates, phenothiazines, ethanol, organophosphate insecticides, carbamates, clonidine, nicotine and PCP,⁸ to name a few.

In a study looking at miosis in comatose children,⁹ researchers found that in acute drug ingestions in children who presented with miosis and coma, the frequency of miosis in relation to coma was 88% for narcotics, 72% for phenothiazines, 35% for ethanol, 31% for barbiturates, and only 3% (in their series) from head injuries or infections of the central nervous system. Miosis in loperamide overdose is a common event but may be altered in the presence of severe hypoxia, severe acidosis or profound respiratory depression.³

Because of its opiate-agonist-like activity it is not surprising that loperamide overdose can involve the central nervous system (CNS). Clinical neurological adversities include drowsiness, irritability, personality changes, and coma. Because this drug is structurally related to haloperidol (Haldol), you could speculate that an acute dystonic reaction is a possibility with loperamide and you would be correct in your speculation. Dystonic reactions are rare but have been reported. Change in personality has been reported after doses of 0.1 to 0.12 mg/kg/day, in toddlers.¹⁰ The author concluded that loperamide may not be suitable for children under the age of three years. The FDA suggests that when using over-the-counter loperamide liquid, a physician should be consulted for children less than six years of age. Furthermore, the FDA warns that this product not be used for more than 48 hours unless directed by a physician, and not be used if the diarrhea is accompanied by fever over 101° or if there is blood in the stool. In our pediatric outpatient clinic where we see over 10,000 children per year, we do not use any (read my lips) antidiarrheal medication for acute diarrhea, none, nada, niente—no Kaopectate, Pepto-Bismol, Lomotil (Heaven forbid!!), Donnagel PG, Parepectolin, corks and so on and now we have another medication we won't use. Nothing personal; children get better without such drugs, thank you, and without the side effects.

Because loperamide has some opiate-like activity it is not surprising that in overdose situations respiratory depression is a possibility. Apnea and respiratory acidosis have been reported.^{11,12} Doses of 0.1 to 2.0 mg/kg have caused respiratory and CNS depression.³ It has been alleged that children are more susceptible to the toxic effects than adults. Over-the-counter liquid loperamide in the form of Imodium AD can be purchased in two-ounce (60 ml) or three-ounce (90 ml) bottles containing one mg of loperamide HC per teaspoonful (5 ml). Therefore, the full two-ounce bottle contains 12 mg of loperamide and the three-ounce bottle 18 mg of loperamide. If the 50th percentile 24-month-old weighs approximately 13 kilograms, consider the following

data: a dose of 0.12 mg/kg for three doses caused CNS depression, bradycardia and cyanosis lasting three days.¹² One dose of 0.27 mg/kg/day caused CNS depression.¹³ One child, age 15 months, given 1 mg of loperamide orally developed severe respiratory depression.¹² Three children given 0.5 mg TID (0.10—0.12 mg/kg/day) became drowsy and irritable and developed (as only the British could say) "unacceptable behaviour"¹⁰ (in other words the little rug rats acted like they were possessed). Admittedly, these are only anecdotal case reports; larger series are not yet available because over-the-counter loperamide has not been available for that long a time period.

If, as a health care professional, you are called upon to manage a patient overdose on loperamide liquid or capsules (2 mg each), there is some good news—there is an antagonist available to attempt to reverse the adverse process. It has been suggested by some authorities that ipecac syrup is indicated after a recent significant ingestion of loperamide if the patient is not obtunded or seizing. However, this can be potentially dangerous because the patient may not get the ipecac within 30 minutes of ingestion and the spectre of CNS depression enters the scene. Emesis and CNS depression is an evil combination. Cautious gastric lavage and administration of activated charcoal and a cathartic may be the better way to produce gastric decontamination. The "magic bullet" for this overdose is naloxone (Narcan), a pure narcotic antagonist with the ability to reverse opioid toxicity, including loperamide, without causing respiratory depression. An initial adult dose of 0.4 to 2.0 mg and an initial pediatric dose of 0.1 mg/kg given intravenously is the way to start specific antagonist therapy. Much larger doses may be needed to achieve beneficial results. Doses may be repeated as necessary. Naloxone is one of the few drugs I know of where large doses can be given with impunity. In this poisoning, utilizing naloxone as therapy, less if not more. Do not be afraid to use this drug. Be afraid *not* to use it!!

Thomas De Quincey, certainly a very prominent British essayist, had a peculiar view of his use of opium and used his considerable literary gifts to justify his addiction. Listen to what he has to say: "... the opium-eater feels that the diviner part of his nature is paramount; that is, the moral affections are in a state of cloudless serenity; and over all is the great light of the majestic intellect. This is the doctrine of the true church on the subject of opium; of which church I acknowledge myself to be the only members—the alpha and the omega."

Your author has no personal vendetta against loperamide HCl but the reader needs to remember that this potential troublemaker is now available, without prescription, and could be inviting to the amateur pediatric investigator or the more experienced older ingestor whose intentions are more purposeful. In his worship of his favorite oral pleasure, De Quincey offers this paean to his chosen "deity": "Thou only givest these gifts to man; and thou hast the keys of Paradise, oh, just, subtle and mighty opium!" I feel the same way about manicotti! □

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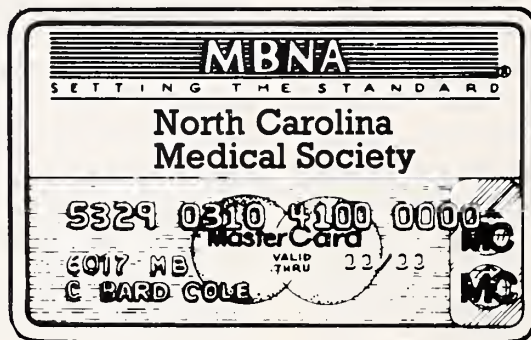
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F O R P A T I E N T S

NORTH CAROLINA MEDICAL SOCIETY

Health Watch

VOLUME 50 / NUMBER 4 / APRIL 1989

Vision

The Vision Test

When you go to your ophthalmologist and find yourself standing in front of a chart full of letters reading the smallest line you can see, do you ever wonder how they figure out that your vision is 20/20 or 20/40 or 20/whatever?

That chart full of letters is a Snellen chart, invented in 1862 by a fellow with the same name. More than 125 years later, it's still used by eye doctors all over the world every day.

The line of letters marked 20/20 on the chart is the line that people with perfect vision (which is 20/20 vision) can read from 20 feet away. The line marked 20/30 has larger letters and can be read by people with perfect vision from 30 feet away; people with 20/30 vision (which is less than perfect) must come closer to the chart, up to the 20 foot mark, to read it. The 20/40 line (which has even larger letters) can be read by people with 20/20 vision from 40 feet but must be read from 20 feet by those with 20/40 vision. And so on.

At 20/50 your vision is poor enough for your driving to be limited to daylight hours in North Carolina. That protects both you and everyone else driving on the road with you. At 20/200 you are considered legally blind in North Carolina. With 20/200 vision you have to be within 20 feet to read letters that people with normal vision can read from 200 feet.

Other eye charts have been devised over the years, and some of them are put to good use in testing children too young to know the alphabet. But the Snellen chart, despite its old age, is still the standard ophthalmologists use to test eyesight.

A Window on Your Health

While your eyes can truly be said to be your window on the world, they can also be said to be your ophthalmologist's window on your overall — not just your visual — health. During routine eye examinations, ophthalmologists often find signs of illnesses and diseases in their patients that are mostly unrelated to the eyes. A visit to the physician who takes care of your eyesight can have a much more significant result than a new pair of designer frames with stronger lenses.

Diabetes is one disease that you can have without knowing it and it can do serious damage to your health before you begin treatment. Sometimes diabetic patients progress to a potentially blinding disease — diabetic retinopathy — before their diabetes has even been diagnosed. Diabetic retinopathy means that the small blood vessels in the eyes have aneurysms or bulges in them which can rupture and leak and cause scarring that causes vision loss. When it is found early enough, diabetic retinopathy can be slowed down with laser surgery. If your ophthalmologist discovers diabetic retinopathy in you, and you are not known to be diabetic, he or she will refer you immediately to your internist or family practitioner for the testing and further treatment you must have.

Vitamin deficiencies can also be noticed during an appointment with your ophthalmologist, as can thyroid disease, multiple sclerosis and certain sexually transmitted diseases, including AIDS. Since most physical ailments that have effects on your vision are illnesses that can be treated and often cured, a visit to your ophthalmologist is the best way to maintain your window on the world and sometimes your overall health as well.

From the North Carolina Medical Society, P. O. Box 27167, Raleigh, NC 27611.

Cataracts

A cataract is a clouding of the lens of the eye which usually develops over many years and can eventually block all vision if left untended. Cataracts cause more than one of every ten cases of blindness.

The lens is the part of the eye that sits behind the colored iris and the pupil and focuses images onto the retina, much the same as the lens of a camera focuses images onto the film. The clouding or fogging of the lens distorts the images entering the eye, and there is a gradual — sometimes unnoticeable — blurring and loss of vision. This is somewhat like having a smudge or speck on your camera lens; you might not notice it at first but it affects the pictures you take, and if it gets larger in time it interferes with your photography.

It isn't at all unusual for your ophthalmologist to notice that you have a cataract forming long before you notice it yourself. Cataracts don't do any harm until they reduce your ability to see, so your physician might follow their progression for several years or even longer before you both begin to discuss treatment. By checking your vision once or twice a year and strengthening your eyeglasses to maintain your ability to see pretty well, he or she may be able to put off cataract surgery for many years.

Cataract Surgery

Cataracts are treated by removing the affected lens surgically. There is no medicine available to reduce the size of cataracts or make a cloudy lens clear again.

During cataract surgery, your ophthalmologist will remove the lens from your eye using suction; lasers are *not*

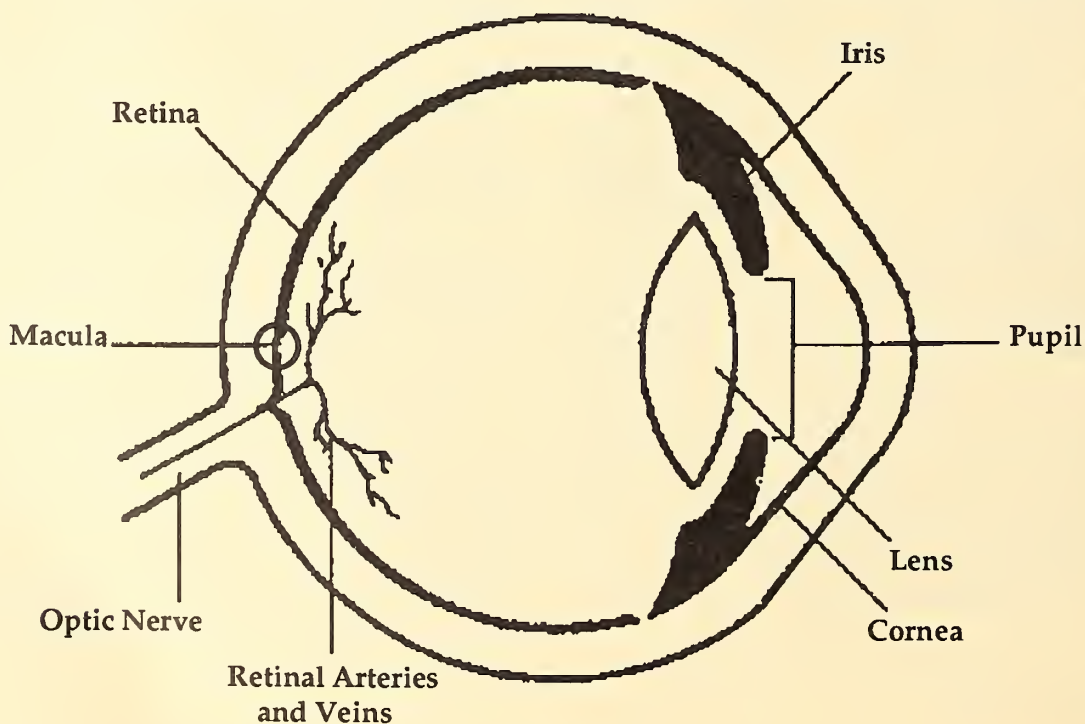
used to extract cataracts. Your natural lens will be replaced in one of three ways. The ideal replacement is an intraocular lens, which is placed within the eye. This choice is the most like the natural lens just removed, but it isn't possible for every patient. The second possibility is a contact lens that you insert and remove on a regular schedule. The third choice is cataract glasses, and for some patients they work very well. Only a few short years ago cataract glasses were the only choice.

Cataracts and Hospitals

Patients having cataracts removed used to go into the hospital the day before the surgery, have the operation on the second day and remain in the hospital another day or two before being discharged. Recent advances and improvements in the care of cataract patients have caused major changes in when and where cataract operations are performed.

Today the operation is almost always done on an outpatient basis; you arrive at the hospital or clinic in the early morning, have your surgery and go home again on the same day. While most patients don't have to spend the night following the operation in the hospital, your ophthalmologist will want to see you on the next day and frequently thereafter (for up to eight weeks and sometimes longer) until he or she is satisfied that your recovery is complete.

Cataracts in both eyes are treated one at a time. Once the recovery from one operation is complete — and your ophthalmologist will know for certain when you have reached that stage — you can begin to plan to correct the other eye. The benefit of cataract surgery is obvious: you can see.



Glaucoma

Glaucoma is a silent disease that can blind you. It's treatable, but it's not preventable. It runs in families, but you can get it even if no one else in your family has had it. It's described as insidious: it's sneaky; it's usually painless; and the damage it does to your vision cannot be corrected. That's the bad news.

The good news is that your ophthalmologist can easily detect your glaucoma. Once detected, it can be controlled, usually with drugs, usually eye drops. There is almost always no reason to go blind from glaucoma.

A glaucoma test is quick and painless, about as simple as having your blood pressure checked. The ophthalmologist numbs one eye with a drop and then places a measuring device on its surface. In seconds the pressure in that eye (the intraocular pressure) is measured. The other eye is done in exactly the same way. You feel nothing.

Glaucoma means that your intraocular pressure is too high, usually in both eyes but occasionally in just one. The pressure is too high because the liquid in the eye (which is called aqueous humor) either is produced too fast or cannot exit from the eye fast enough or a combination of the two. The too-high pressure damages the optic nerve and vision begins to be lost, first at the side or periphery and then toward the center, so slightly at first that you don't notice. The lost vision cannot be regained, even surgically.

Intraocular pressure can vary over the course of a day or week or month. If it's too high one day it may be normal another. For that reason it's important to have it checked regularly, at least once every few years after you turn 40. If glaucoma runs in your family or if you have diabetes, you and your ophthalmologist may decide on more frequent checks starting at a younger age.

If your intraocular pressure tends to be too high several times it's measured, your ophthalmologist will pay especial attention to some other aspects of your eye examination. By looking carefully at the structures within your eyes—including the optic nerve and blood vessels—he or she can see other early signs that will help determine the diagnosis. Visual field testing, which detects and measures any loss of peripheral or side vision, is the usual next procedure your ophthalmologist will recommend for you if there is reason to suspect the presence of glaucoma. Once you are told that the time has arrived to begin treatment for glaucoma, it will be up to you to continue it faithfully for the rest of your life or risk losing all of your sight.

A Reasonable Eye Care Schedule

You don't need to see your ophthalmologist as often as you should see your internist or family practitioner but, as with any visit to any medical doctor, you should go immediately when there is a problem with your vision. You only get two eyes in your lifetime and they will serve you well only if you take good care of them.

If you have a family history of vision problems such as strabismus (crossed or cocked eye) or amblyopia (lazy eye) or if there is an obvious problem, children should be seen by an ophthalmologist early in life. Like other physicians who

choose to specialize in one aspect of medicine, ophthalmologists are first educated and trained in the care of the whole person. Only after medical school and a general internship do they begin to concentrate during residency on the medical and surgical care of the eye. Their treatment of eye diseases, and the effects other diseases can have on your eyes, can mean the difference between living your life sighted or blind. Sometimes a childhood visit to your ophthalmologist is crucial.

If your child begins school with an undetected eye problem, he or she is at a real disadvantage from the very start. Therefore, children's vision

should be checked by their regular doctor at about the age of three. The three-year-old checkup is a simple E chart reading with first one eye covered and then the other. This test will pick up generally poor vision or unequal vision, two reasons to schedule a visit to your eye specialist.

Unless your child complains about headaches or having trouble seeing the blackboard at school, there isn't really any reason to return to your ophthalmologist until between the ages of fifteen and twenty. At that point the doctor will test vision and pressures, the appearance of the internal eye and, if necessary, other aspects of your vision as well. Assuming all is well, regular three to five-year visits should be enough until about age forty.

Beginning at age forty you will want to set up a more frequent schedule of checkups with your ophthalmologist, perhaps every one to two years. Vision does begin to noticeably weaken around forty (making reading glasses a necessity), and signs of other visual problems—such as glaucoma and cataracts—can often be detected by then as well.

The older you are the more necessary regular eye checkups become. After learning your family history and examining your eyes for any abnormalities, your ophthalmologist will be able to guide you to the best eye care schedule for your own eyesight.



Macular Degeneration

The most common form of this eye problem usually comes from growing older, so there isn't anything you can do to prevent it. Macular degeneration cannot be cured; you learn to live with it.

What happens to patients with macular degeneration is the gradual loss of their central vision so that a blur blocks the middle of what they're looking at. It's annoying and it makes close-up work difficult to sustain, but it isn't something that causes total blindness. With macular degeneration you still have your side or peripheral vision, and there are visual aids available to help you with close-up work.

The retina is the part of the eye that receives and processes the images that come through your cornea and lens. The central part of the retina is called the macula, and it is responsible for receiving the central part of these images. As the macula begins to deteriorate, the central part of your vision deteriorates, and this is where the blurring begins.

You might not notice any early signs of macular degeneration since it is both slow and painless. Your ophthalmologist can detect some early signs, however, and there are several tests he or she can put you through to make the definite diagnosis. The first is a very careful examination of the macula to search for damage. Another involves looking at a grid that is much like a piece of graph paper; if you have early macular degeneration, areas in the center of the grid will appear wavy or distorted. Since color vision is also affected by this disease, a test of your color vision may contribute to the diagnosis, too. Yet another test is an angiogram, in which the ophthalmologist injects a dye into your arm and then takes pictures of the retina and macula as the dye reaches the blood vessels in that area of the eye. The dye will help show any blood vessel abnormalities caused by the disease.

Sometimes macular degeneration affects only one eye at a time, so you may not even notice it until your second eye becomes involved. Because of the tests just mentioned, your ophthalmologist is able to detect it at an early stage, and this is especially important if you have the rarer form of macular degeneration, which can be slowed down by laser surgery only if it is caught in its very early stages.

Even if you have the more common form of macular degeneration, which cannot be helped by laser surgery, it is important to know as early as possible that you have the beginnings of vision loss so that you can learn about optical aids that will help you lead a near normal life. Magnifying glasses, telescopes and special lamps are a few of the devices available to assist patients with macular degeneration.

If you have a family history of problems with the retina of the eye or if you are over 50 years old, see your ophthalmologist to have your vision checked periodically. And remember that patients with macular degeneration can be helped and will not lose all of their sight.

Strabismus

When the muscles that control the movement of the eyes don't work together properly, you have a condition referred to as strabismus or squint. There isn't a single known cause of strabismus, but it does run in families. If there is a history of strabismus in your family, your children should be checked by your ophthalmologist in their infancy.

When the eyes don't work together, the brain receives two images of what you're looking at rather than one. The brain reacts to the two images by processing only the one from the stronger or straighter eye. In some children the straight eye alternates; sometimes it's the right eye and sometimes it's the left. Other children have a definite preferred eye and the weaker eye becomes amblyopic or lazy. These children have amblyopia, lazy eye — which is reduced vision in one eye — which can become permanent if not caught and treated early.

Strabismus and amblyopia are not always easy to detect. Sometimes parents note a slight crossing of one eye in their young child; sometimes children fail the vision test their pediatrician gives them around the age of three; sometimes parents just have a hunch all is not well with their child's eyesight. That's the time to take him or her to see your ophthalmologist.

The treatment for strabismus and amblyopia aims to strengthen the vision while straightening the eyes and trying to get them to work together so that the child has depth perception. There are a number of options available, and your ophthalmologist will recommend the one that seems most appropriate to him or her first. The options include prescribing eyeglasses, patching one eye, prescribing eye drops and operating on the eye muscles. Sometimes all of these options must be tried.

The key to successful treatment of strabismus and amblyopia is early treatment. If you're in doubt about your child's vision, make an appointment to see your ophthalmologist. Those two eyes have to last a lifetime. □

In Upcoming Issues

May: What it's like to have – and recover from – cataract surgery

June: Protecting your eyes and preserving your vision

July, August, September: Diseases of the skin

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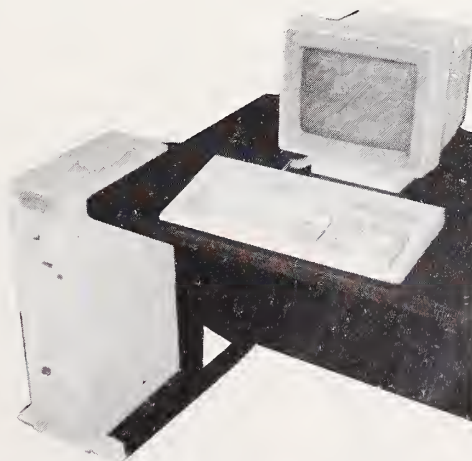
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Consent for a Minor's Abortion

Edward C. Halperin, M.D.

The General Assembly of North Carolina is considering engaging in a social experiment. This experiment takes the form of House Bill 93, an act to require parental or judicial consent for an unemancipated minor's abortion.¹ The bill was introduced by Representative Paul B. Stam, Jr., Republican of Wake County.² Under current law, if a minor wishes to obtain an abortion, she identifies a physician willing to perform the procedure. After the physician examines the minor and determines that the abortion is appropriate, the procedure may be performed. The physician and the minor may, and often do, obtain the consent of one or both parents. They are not, however, required by statute to do so. House Bill 93 would change the law to require parental consent for the abortion. If, however, the minor cannot or will not obtain such consent, she is offered a judicial bypass procedure. The minor may go to court and a judge will determine her maturity and judgment in asking for the abortion. The judge may or may not approve the abortion. The proposed change in North Carolina's abortion law has been tried in at least a dozen other states.³ It is instructive to review the pertinent data, published in the medical literature, available from these states.

Parental Consent and Judicial Bypass Examined

Between 40% and 60% of minors inform one or both parents of their intent to have an abortion. This percentage is the same in states that have a parental consent law as in those that do not.^{4,5} There is no evidence that the law influences the probability of a minor communicating about abortion with her parents. The data do indicate that the vast majority of minors are completely unaware of the existence of statutory

consent provisions.⁴ There is no evidence that such laws modify the sexual behavior of adolescents.

In states that have a judicial bypass procedure such as that provided in House Bill 93, the majority of minors who have chosen not to communicate with their parents either use the bypass procedure or go out of the state to get the abortion. Minors do not encounter the obstacle of judicial bypass and return to their parents to obtain a consent. Such behavior is not, of course, surprising to those familiar with adolescents.

What reasons are given by minors for unwillingness to obtain parental consent? The data show the two most common reasons given by minors for not informing their mothers are: (a) fear of producing disappointment or embarrassment; and (b) fear of physical punishment or other retaliation. The two most common reasons for not telling one's father are: (a) the father does not live in the household with the minor; and (b) fear of physical punishment or other retaliation.⁵

Do consent laws reduce the number of minors' abortions? No. In Massachusetts the advent of the consent law caused in-state abortions on minors to drop. Out-of-state abortions performed on Massachusetts minors went up approximately an equal amount. The net effect was no significant change in the numbers of Massachusetts minors obtaining abortions.³ The prospect of minors crossing state lines to obtain abortions should be a matter of considerable concern to clinicians. By being farther away from her physician, a minor is likely to receive less adequate follow-up care. The minor may receive inadequate contraception counseling—a situation which may lead to another pregnancy.

What do the available data show about the judicial bypass procedure? In Massachusetts and Minnesota, which have such procedures, almost 100% of minors' petitions for abortion are granted. The minors, usually 16 or 17 years old, are well prepared for their court appearance by lawyers and family planning counselors. The judicial hearings usually take five to twenty minutes. Those few cases that are initially denied are almost always overturned on appeal.⁶ The time of lawyers, family planning counselors, and judges is consumed. The minor loses a few more days from school. The abortion is ultimately obtained—but it is obtained a few days longer into pregnancy when it is a bit more risky. Judicial

From the Division of Radiation Oncology, Duke University Medical Center, Durham 27710. Reprint requests to Dr. Halperin at this address.

bypass procedures also place judges in a peculiar situation. Either they determine that the minor is mature enough to obtain an abortion, or they determine that she is too immature to elect an abortion and is, therefore, required to carry the pregnancy to term.⁷

Proponents of the act to require parental or judicial consent for an unemancipated minor's abortion offer several arguments in favor of the law. The first may be referred to as the "ear piercing/appendectomy argument." This argument suggests that since a minor needs an adult's consent to have her ears pierced, to have an appendectomy, or to go to a school dance, why shouldn't she have parental consent for an abortion? The response is straightforward. Having one's ears pierced is not an experience which strikes fear into the hearts of adolescents and which they are fearful of discussing with their parents. Frightened minors don't seek criminal ear piercing procedures and die from them. Minors do, however, seek criminal abortions if they cannot obtain them in a safe manner. There is legal precedent for not obtaining parental consent for medical care of a minor. The state of North Carolina has recognized that in certain situations, such as venereal disease or substance addiction, minors may be treated without parental consent.

Another argument offered in favor of House Bill 93 is that it is necessary to have adults more involved in the abortion procedure—that the bill is "pro-family." Again, the response is straightforward. Parents are already involved in 40% to 60% of minors' abortions. When parental consent is not obtained, an adult is still involved. That adult is a licensed physician of North Carolina—individuals who take their responsibility seriously in such matters and do not perform abortions without due consideration of the patient's needs.

House Bill 93 raises a difficult issue in medical ethics. The Legislature is being asked to balance the right to privacy and confidentiality inherent to the patient/physician relationship vs. the generally accepted right of parents to control, to the extent legally possible, the behavior of unemancipated minors. The Legislature is, however, fortunate in that it has data to apply to the situation. If the intent of House Bill 93 is to increase parental communication with minors, the data show that it will not. The same number of minors communicate their intentions to have an abortion with their parents whether or not such laws are in place. You simply cannot legislate family communication. If the intent of House Bill 93 is to decrease the number of abortions performed on minors, the data show that it will not. Minors will obtain their abortions either out-of-state or by criminal means. If the intent of House Bill 93 is to decrease teenage pregnancy, there are no supportive data.

In 1988 the North Carolina Medical Society's House of Delegates considered a bill similar to House Bill 93 and elected not to lend the Society's support to the legislation. I believe that this was a wise action on the part of the House of Delegates. House Bill 93 should not become law.

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Your Patient Advocate Is at the Beach

James P. Weaver, M.D.

I was on call that weekend. There are four general surgeons in my group and it was my turn. Forty patients to make rounds on and taking the phone calls was just about enough to keep me busy that morning. Being up the night before with an emergency did not make it any easier, but you cannot put a perforated duodenal ulcer aside until morning.

As I neared the end of my morning rounds, and answered another page from the operator, that dreaded number flashed across the screen of my high tech beeper: "5345," the emergency room. Was it another "real" emergency? Would I be on my feet for another four, five, or six hours, with a disaster? I was getting too old for this pace. I headed downstairs hoping it would be otherwise. In all fairness, Mr. Thompson, the patient I met there, had had a worse night than I. He had never been sick, and at fifty, he was the picture of health. He awoke at three o'clock that morning with a pain in his abdomen that was different from the usual gas pains we all occasionally feel. This one did not get better; in fact, it intensified, and forced him to the emergency room at 6:00 a.m.

His was a typical case of appendicitis: nausea, vomiting, leukocytosis, and tenderness at McBurney's point! It was clear that he would have to go to surgery.

Tired as I was, I discussed the usual details and prepared him for his operation. The operating room was called, lab reports assembled, prep ordered, and the operative request was signed.

"Do you have any questions, Mr. Thompson?"

"No, uh, no I don't think so."

"Well then, I'll meet you upstairs in the operating room as soon as they call for you."

"Oh, uh, Dr. Weaver, I do have one thing you need to know about me."

"What's that?" I expected an important piece of medical information: diabetes, steroid medication, hemophilia or possibly AIDS?

"I have an insurance policy with the Travelers, and I have this 'Patient Advocate' who you have to notify if I need hospitalization or surgery. She checks up on the appropriateness of the plans and things of that sort."

I couldn't believe it. Saturday morning at 9:00, and I had to call his "patient advocate." Who was I anyway? One would think that there could be only one "patient advocate," and the Travelers had beat me to it! I knew I had to clarify my position in this new relationship even though the Travelers had verbally promised to fulfill my usual role—the Travelers are now referring to their utilization review nurses as the "Patient Advocate."

"Mr. Thompson, let me tell you something, your 'patient advocate' is at the beach. If we are going to have this problem taken care of, it's going to be you and me, and that's it. You can try to call her, but it's nine o'clock Saturday morning, and I'm certain you can't reach her. She's on the beach, having a great time. But be sure to have someone from your family call her Monday morning at nine a.m. If you don't, your 'patient advocate' will see to it that the Travelers doesn't pay your hospital or doctor bills. See you upstairs."

Mr. Thompson sailed through his operation, and did well. I think he even went home before his "patient advocate" called me to "check up on the appropriateness of his hospitalization." That's good too, because I won't talk to them anyway. I see no reason for an insurance company to push itself into the physician-patient relationship (which I consider private and confidential).

As a physician, trained in the traditional school, and believing that I am the "patient advocate," I believe that the emptiness of the implied promises of the Travelers "patient advocate" should be pointed out at every opportunity.

At three o'clock in the morning, when the blood pressure is seventy, and the operating room is preparing to open that stomach to suture a bleeding vessel, where is the Travelers "patient advocate"? When the patient arrives in the emergency room, torn by the ravages of vehicular carelessness, in pain, and broken, where is the Travelers "patient advocate"? At the death bed, with the family crying by the bedside, where is the Travelers "patient advocate"?

You will find the Travelers "patient advocate" when the patient needs that extra day of hospitalization because the

From 1830 Hillandale Rd., Durham 27705.

pain is too great, or the distance is too far, or there is no one to help him when he goes home to an empty house. This is the place for the patient to get to know his "advocate." Encourage your patients to call and request their own "pre-certifications" and "extensions"; it is a good opportunity for them to get to know who their true "advocate" is.

In the struggle for the allegiance of our patients, physicians have a golden opportunity if we will only take advantage of it, to clarify who the real "patient advocate" is. Encouraging the patient to deal with their insurance carriers is the best way to demonstrate who really cares. Only if the patient calls and obtains his own "pre-certification" will he find out that the Travelers "advocate" expects him to go home in four days after a thoracotomy. The patient will not discover that his Travelers "advocate" doesn't care about his 102° fever quite as much as his doctor does unless he or his family calls for the three-day "extension" of the hospitalization. It is the doctor's position to explain to his or her patients, "I will keep you in the hospital as long as needed, and until I'm certain it is safe to send you home, even if your 'patient advocate' wants me to discharge you today."

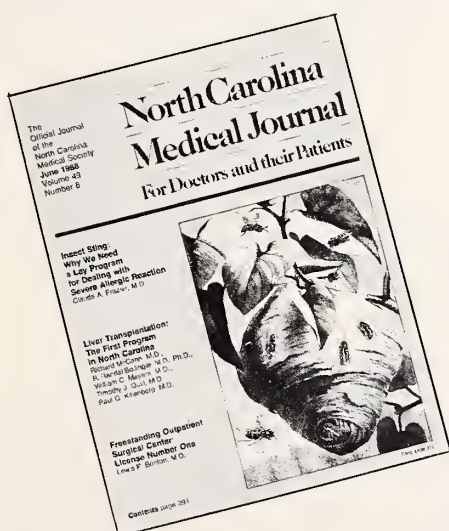
Physicians are only adding to the illusion of the importance of the insurance carrier when they condone or allow physician-insurance company dialogue to occur without a prior contractual agreement. I am certain that when the

physician and the insurance company have their discussions about "extensions" of hospitalization, and the discussion is initiated by the physician who calls the insurance company, that it elevates the importance of the insurance company in the eyes of the patients, beyond a purely financial obligation, to a level that is inappropriate. Unless they have signed a contract with a particular insurance company, physicians do not have to bicker with them, patients do. Physicians are only undermining their own strengths and playing into the hands of the third parties when they "cooperate" with "non-contractual" demands. Let the patients do it.

I saw Mr. Thompson in my office last week. He is healed now, and feels good again. I'm glad I took the time that Saturday morning to teach him who his real "patient advocate" was. I think that because of the time I took to get him to talk with the Travelers, I am working with a patient who correctly understands my relationship with him and his relationship with his insurance company. Chances are that in the future, if Mr. Thompson has a health problem he will come to me for the medical advice, discuss the finances with the insurance company, and as for his Travelers "patient advocate"—well, if it happens at the beach, he might find her; she's still there having a wonderful time. And you know, "Patient Advocate" is a pretty heavy phrase to use lightly. I hope the Travelers discovers this before it's too late. □

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Third World Surgical Rotations

One Resident's Perspective

R. Bradley Thomason III, M.D.

During October and November, 1987, I took an extramural rotation in Tanzania, East Africa to work both as a surgery resident at the Kilimanjaro Christian Medical Center (KCMC) and as a visiting surgeon in two mission hospitals. I relate some of my experiences there and share my observations so that anyone who has similar interests might be encouraged to pursue them.

I had always been interested in working as a medical missionary, but I was hesitant to commit a large portion of my life to some particular place or organization without a clearer understanding of what was involved. Then I met Dr. Nat Tan, a missionary in Tanzania who was spending a sabbatical year as an International Fellow in Surgery at our medical center, and I learned that there are many opportunities for short-term service in underdeveloped countries—trial runs, if you will, that would help to clarify some of those concerns. When Dr. Tan showed his slides of medical work in Tanzania, I was newly excited about the prospects, and casually said, "I've always wanted to do something like that." He responded with, "You can. Come and work with us." Suddenly, opportunity had knocked.

Where one is a resident and has elective time available in his or her training program, then a third world surgical rotation may well be an option. Formal arrangements can be made between one's residency program director and the hospitals where one will serve so that approved residency training credit can be awarded and the cases performed will be credited toward one's total operative experience. In my situation, the rotation was not strictly supervised by board-certified surgeons and therefore did not count toward my formal residency training. However, since I was taking an extra clinical year of residency I could use two months of elective time without infringing on the American Board of Surgery's requirement for five full years of supervised residency training.

Anything from weeks to months can be arranged. Numerous denominational and nondenominational organizations will assist in placement, travel arrangements, and even financial arrangements if one desires. I arranged this trip myself, with the assistance of Dr. Timothy C. Pennell, my surgery program coordinator and Director of International Health Affairs at Wake Forest University Medical Center.

Practicing surgeons, of course, can also take advantage of this opportunity, with fewer administrative constraints and with the opportunity to practice all aspects of general surgery.

Tanzanian Medicine

The corps of Tanzanian physicians, surgeons (with surgical training of one to five years), physician assistants, and nurses are a vital part of the hospital system in Tanzania. They function as broadly trained generalists in all areas of health care delivery. Although this national medical work force is enlarging, the present large population and poor economic status of Tanzania far outstrip their ability to provide medical care for the country without outside assistance.

There were other American physicians in the hospitals where I worked, and their help was invaluable to me. They understood the language and the hospital system, and they helped me every step of the way. At KCMC, there were American board-certified surgeons—two urologists, one orthopedist, and one general surgeon.

The small district hospitals were tended by American physicians with excellent training in family practice or internal medicine; surgeons from KCMC flew out there every month or so to do elective surgery. Because I was not restricted to working under Board-certified surgeons, I was able to travel to and work in two of these district hospitals. I was usually the only physician with surgical training, which left me with the primary responsibility of providing care for the surgical patients.

Quite impressive is the fact that the "generalists" in these small hospitals, out of necessity when no surgeon is

From the Section on General Surgery, Department of Surgery, Bowman Gray School of Medicine, Wake Forest University Medical Center, Winston-Salem 27103.



The male ward at KCMC was always overcrowded, sometimes with two patients to a bed.



Women in labor at the Mugumu District Hospital walked over to this delivery table from the adjacent room, and then walked back to their bed after delivery.



As a tribal custom, this Luo woman opened her ear lobes to make herself more attractive.



These villagers along Lake Victoria, like many Tanzanian people, live in mud huts with thatched roofs.



These women, dressed in African kangas (wrap-around pieces of cloth), are returning from a weekly trip to the market. They sometimes carry as much as 20 to 30 lbs. of supplies on their heads.



This "ambulance" provided long-distance transportation over dirt roads to the Shirati Mennonite District Hospital for a severely ill patient with Fournier's gangrene of the scrotum.

available, perform emergency operations such as caesarean sections, appendectomies, repair of incarcerated hernias, and amputations. Considering the fact that they have had no formal surgical training, their performance is remarkable, but they do not mind admitting that they "break out in a cold sweat" whenever they wield the scalpel.

Although I questioned whether I could do a better job, they were happy to hand over the operating room to me when I went as the visiting surgeon. While this proved to be challenging and at times frightening, I suggest it as a tremendously valuable learning experience and one that provides a deep sense of gratification. It truly instills autonomy, and through it I have gained a greater insight into the importance of mastering the basic principles of surgery.

The Role of a Visiting Surgeon

I was challenged with a wide spectrum of surgical diseases encompassing every branch of general surgery. During my first day at the Shirati Mennonite District Hospital, I scheduled two full weeks of elective cases. The patients had been told that a surgeon was coming and all those who had been waiting for the past two months were there in the clinic when I arrived—patients needing hysterectomies, hernia repairs, skin grafts, irrigation and drainage of abscesses or wounds, amputations, or exploratory laparotomies for undiagnosed abdominal masses.

Those next two weeks were hectic. For example, while I was doing a scheduled herniorrhaphy, the nurse came in to inform me of a patient in labor who was not progressing well and needed a caesarean section. The attending family practitioner wanted me to do the operation, but wanted to assist me for the benefit of his own learning experiences. Therefore, the surgery resident "learner" suddenly became the "teacher." I had never actually done a C-section, but utilizing standard surgical principles the assistant and I performed the needed operation, and the mother and baby did well.

That is but one of the many cases in which common sense and a basic understanding of surgical principles served me, and the patients, well. In another case, a patient came to the clinic complaining of pain in the back of his throat when he swallowed—he said it felt like a pin sticking him. Further questioning through an interpreter revealed that he had eaten fish the day before. Although I had never searched for a foreign body by direct laryngoscopy, I had used a laryngoscope before and I did understand the basic technique. With the patient mildly sedated for anesthesia, I visualized the hypopharynx and extracted several small bones from the piriform recess. This relatively minor procedure was further complicated by the fact that there was no anterior commissure laryngoscope and no supporting equipment—only a dimly-lit, intermittently functioning MacIntosh laryngoscope (the only one the hospital anesthetist owned), a McGill forceps (which I found on a back shelf), and a foot-powered suction catheter (which the nurse pumped for suction).

Nevertheless, after the procedure, the patient's odynophagia was relieved; he thanked me and went home.

Another patient was brought to the hospital with an open depressed skull fracture. The only neurosurgical training I had had was a rotation as a PGY1 and then I had only assisted with craniotomies. I knew, however, that a craniotomy was what this patient needed for debridement of depressed fragments and to rule out epidural or subdural hematoma. Again, a knowledge of basic surgical principles and meticulous tissue handling allowed me and the patient to survive the exploratory craniotomy. This diagnostic technique is a bit more cumbersome than obtaining a CT scan (which was unavailable), but it was practical. Remarkably, this patient was discharged home after six days without complications.

Third World Service Is a Learning Experience

When a resident undertakes such cases during training, he or she is always supervised by someone more senior and more knowledgeable. In a third world country, where no other surgeon is available, the resident does not have the security of that supervision. Independent decisions must be made on the basis of limited diagnostic information, and the resident has an initial sense of insecurity regarding his or her capabilities to perform the needed operations.

As can be surmised from the example of the patient with fish bones in his throat, the surgeon is also challenged by the limited resources available. In Tanzania and other similarly underdeveloped countries, one must fall back on the old "standard" surgical techniques. With no suction or electrocautery, one relies on ligature hemostasis to provide exposure and prevent hematoma. One uses sharp dissection with the scalpel or scissors because no bovie unit is available. Without suction drains, one reverts to the tried and true method of dependent drainage of abscesses and wounds. Without wall suction, one is reminded of the simple physics and physiology of underwater seal drainage for tube thoracostomies. Without advanced antibiotics, adequate surgical debridement and drainage come to the forefront in the management of infected wounds. And without the benefit of frozen-section diagnosis, one must rely on what one can palpate and see at the operating table to determine whether adequate margins have been obtained when resecting a carcinoma.

One again becomes aware of the value of the history and physical examination in diagnosing a disease and monitoring the patient's progress during treatment. With sodium, potassium, and hematocrit values being the only laboratory values available (and those usually with a 24-hour delay), and with no sonograms or CT scans and seldom even a plain x-ray, one must rely on one's acuity in diagnosing a problem solely on the basis of the history and physical examination. As was the case with the neurosurgical trauma patient, this is a challenge. Without the benefit of the CT scan, one must use

physical findings to decide which side of the cranium to explore (i.e., open the side exhibiting the dilated pupil, lateralizing paralysis, or evidence of trauma). To evaluate for epidural or subdural hematoma, one has to examine each side of the dura at the operating table. These craniotomies, like all operations, are done in an operating room without electrocardiographs, arterial lines, arterial blood gas sampling, or other elaborate monitoring capabilities. There may be only one blood pressure cuff, which is shared by the anesthesiologists and carried periodically from one operating room to another. There are no ventilators and only seldom is oxygen available. The most commonly used anesthetic gases are ether and halothane.

There is usually a language barrier between the American physician and the patient, but since English is the standard language of medicine, the national nurses, doctors, and hospital workers can usually help to translate the patient's complaints. The patient with fish bones in his throat spoke only Luo (his regional tribal language). I spoke neither Luo nor Swahili (the national language). Fortunately, hospital staff were found who could understand him. This situation becomes a special diagnostic challenge when the local people do not know a patient's tribal dialect. If no history can be obtained, one must rely entirely on the physical examination.

Late-stage disease is commonplace. For example, one patient with a well-localized, grossly visible appendiceal abscess had walked eight hours to reach our clinic to be seen by the "daktari."

At the bedside, careful evaluation of the patient is critical in day-to-day management. The amount and concentration of the urine provide useful information about the adequacy of hydration. Although the color of the tongue and conjunctivae do not provide an accurate hematocrit value, they must suffice in many instances. By observing physicians who have worked in underdeveloped countries for many years and who have become adept at reading such subtle signs, I learned much about "hands-on" management of the patient. It is a worthwhile lesson to learn—or to relearn—exactly what a comprehensive history and physical examination can provide the careful examiner.

As a surgeon in a third-world country, one comes to appreciate the value of cost containment in providing medical care. Working in a hospital where laboratory serum chemistry values are not routinely available and observing that patients recover without them, one begins to wonder if the routine three-times-a-day electrolyte checks ordered in our present American system are really necessary. With a limited number of Foley catheters, one must decide which patients truly need bladder drainage. Even those patients usually undergo irrigation and drainage with a single catheter that is washed with soap and water and used again as the attending group moves from bedside to bedside on the ward. With limited amounts and kinds of antibiotics, one learns not to use them routinely but to save them for situations in which their indications are clearest. With many hospitals so poor

that film for plain x-rays is a luxury, one must consider whether a chest x-ray or flat plate of the abdomen is essential for diagnosis. (At the Mugumu District Hospital, where we only occasionally had electricity or running water, fractured bones were often diagnosed, reduced, and casted on the basis of physical examination alone.) Furthermore, one soon develops a keen awareness that all medical equipment and supplies must be protected and cared for, so as to be available and functional for years to come.

Working in an underdeveloped country also provides insight into political and socioeconomic problems in countries other than one's own. One most often works in a society where there are no medicolegal barriers to practice; there is no fear or threat of malpractice suits; there is no ethics committee or utilization review board. One is limited or guided only by one's principles. One will be working with national physicians who have absolutely no financial incentive to practice medicine. It is impressive that these physicians have spent years of training, usually separated from their families and in difficult and demanding living situations, yet their government salaries are hardly sufficient to feed their families.

The nonmedical aspects of a third world experience are also educational and beneficial. One might imagine that the absence of electricity—and concomitantly the absence of television—would be a hardship, but that was one of the most interesting aspects of my experience. It allowed a much slower pace of life, with time to sit and read, to write, to think, or to walk and chat with friends.

The absence of other options provided me with time to re-evaluate some of my views on life. The Tanzanian people have a very fatalistic approach to life and death. In the hospital this is evidenced by their reluctance to rush to resuscitate a fatally injured or critically ill, dying patient. With our hard-driving, compulsive, "do it right now" view of such situations, this attitude is difficult for Americans to accept. The Tanzanian's manner of accepting things as they are pervades every aspect of their life. In America, we tend to change the environment and other things around us so that they adapt to us; the Tanzanians adapt themselves to the environment.

Perhaps this fatalistic viewpoint relates to the fact that for the majority of Tanzanians life is truly a day-to-day existence. There are, at times, frank incongruities between life in this country and life in Tanzania; between our culture and theirs; between our financial resources and theirs; and as a result, between their priorities and ours. A substantial number of Americans can frequent nice restaurants and in a single evening spend more money than is available to operate a Tanzanian hospital for a month. This caused me to pause, reflect, reassess the fairness of this, and to reexamine my own priorities. I am satisfied that most of us cannot witness such incongruities with callousness or indifference. There is almost a compulsion to rectify the inequalities. Through my Tanzanian experience, I felt this compulsion and as a result I have rearranged many of my priorities. My experience has

certainly made me grateful for the bounty we have here in the United States, but it has also made me aware of, and uncomfortable with, some political and socioeconomic inequalities in other parts of the world.

I believe that those in medicine have an obligation to humankind that crosses all racial, social, economic, cultural, and political barriers. As providers of health care, we physicians stand in a privileged position throughout most of the world. In many third world countries where evangelistic missionaries, agricultural workers, and teachers are denied entrance, health care workers are still welcomed. As a physician, one can offer a service that is sorely needed in those countries. One will test one's knowledge, maturity, and adaptability. The challenges are almost staggering, yet so are the rewards. This opportunity, at least for me, provided an educational, gratifying, and even life-changing experience. □

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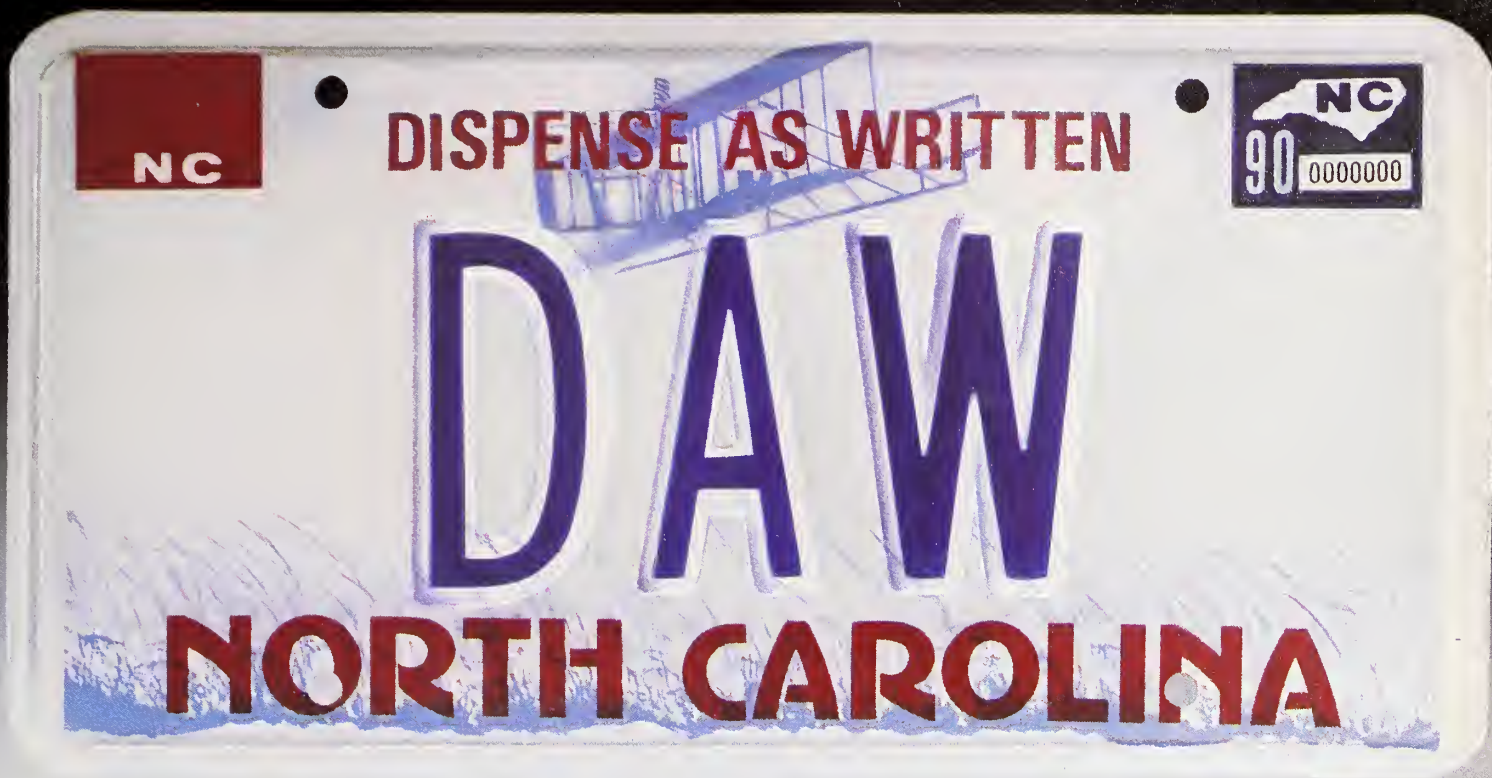
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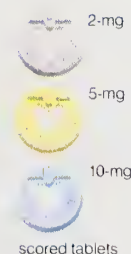
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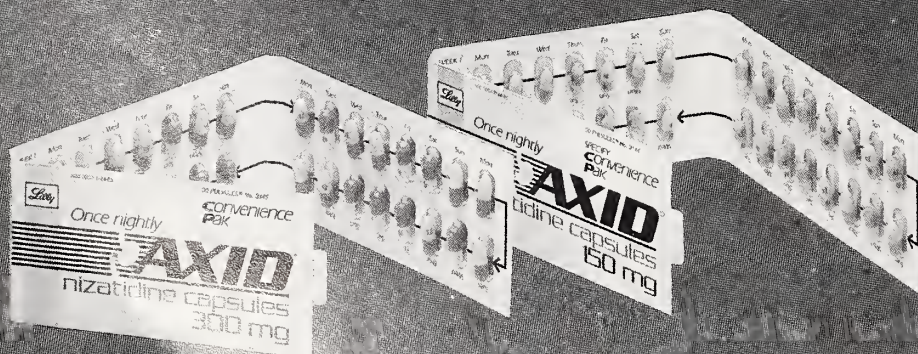
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Indications and Usage: Axid is indicated for up to eight weeks for the treatment of active duodenal ulcer. In most patients, the ulcer will heal within four weeks.

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Contraindication: Axid is contraindicated in patients with known hypersensitivity to the drug and should be used with caution in patients with hypersensitivity to other H₂-receptor antagonists.

Precautions: General — 1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Because nizatidine is excreted primarily by the kidney, dosage should be reduced in patients with moderate to severe renal insufficiency.

3. Pharmacokinetic studies in patients with hepatorenal syndrome have not been done. Part of the dose of nizatidine is metabolized in the liver. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests — False-positive tests for urobilinogen with Multistix® may occur during therapy with nizatidine.

Drug Interactions — No interactions have been observed between Axid and theophylline, chlorazepate, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450-linked drug-metabolizing enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increases in serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility — A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice; although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (50%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy — Teratogenic Effects — Pregnancy Category C — Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus and at 50 mg/kg it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers — Studies conducted in lactating women have shown that <0.1% of the administered oral dose of nizatidine is secreted in human milk in proportion to plasma concentrations. Caution should be exercised when administering nizatidine to a nursing mother.

Pediatric Use — Safety and effectiveness in children have not been established.

Use in Elderly Patients — Ulcer healing rates in elderly patients are similar to those in younger age groups. The incidence of adverse events and laboratory test abnormalities are also similar to those seen in other age groups. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of nizatidine included almost 5,000 patients given nizatidine in studies of varying durations. Domestic placebo-controlled trials included over 1,900 patients given nizatidine and over 1,300 given placebo. Among reported adverse events in the domestic placebo-controlled trials, sweating (1% vs 0.2%), urticaria (0.5% vs < 0.01%), and somnolence (2.4% vs 1.3%) were significantly more common in the nizatidine group. A variety of less common events was also reported; it was not possible to determine whether these were caused by nizatidine.

Hepatic — Hepatocellular injury, evidenced by elevated liver enzyme tests (SGOT [AST], SGPT [ALT], or alkaline phosphatase), occurred in some patients and was possibly or probably related to nizatidine. In some cases, there was marked elevation of SGOT, SGPT enzymes (greater than 500 IU/L) and, in a single instance, SGPT was greater than 2,000 IU/L. The overall rate of occurrences of elevated liver enzymes and elevations to three times the upper limit of normal, however, did not significantly differ from the rate of liver enzyme abnormalities in placebo-treated patients. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular — In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS — Rare cases of reversible mental confusion have been reported.

Endocrine — Clinical pharmacology studies and controlled clinical trials showed no evidence of androgenic activity due to Axid. Impotence and decreased libido were reported with equal frequency by patients who received Axid and by those given placebo. Rare reports of gynecomastia occurred.

Hematologic — Fatal thrombocytopenia was reported in a patient who was treated with Axid and another H₂-receptor antagonist. On previous occasions, this patient had experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental — Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity — As with other H₂-receptor antagonists, rare cases of anaphylaxis following administration of nizatidine have been reported. Because cross-sensitivity in this class of compounds has been observed, H₂-receptor antagonists should not be administered to individuals with a history of previous hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other — Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine administration have been reported.

Overdosage: Overdoses of Axid have been reported rarely. The following is provided to serve as a guide should such an overdose be encountered.

Signs and Symptoms — There is little clinical experience with overdosage of Axid in humans. Test animals that received large doses of nizatidine have exhibited cholinergic-type effects, including lacrimation, salivation, emesis, miosis, and diarrhea. Single oral doses of 800 mg/kg in dogs and of 1,200 mg/kg in monkeys were not lethal. Intravenous median lethal doses in the rat and mouse were 301 mg/kg and 232 mg/kg respectively.

Treatment — To obtain up-to-date information about the treatment of overdose, a good resource is your certified regional Poison Control Center. Telephone numbers of certified poison control centers are listed in the Physicians' Desk Reference (PDR). In managing overdosage, consider the possibility of multiple drug overdoses, interaction among drugs, and unusual drug kinetics in your patient.

If overdosage occurs, use of activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance.

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Lessons Learned from a Survival Course

Eugene Rossitch, Jr., M.D.

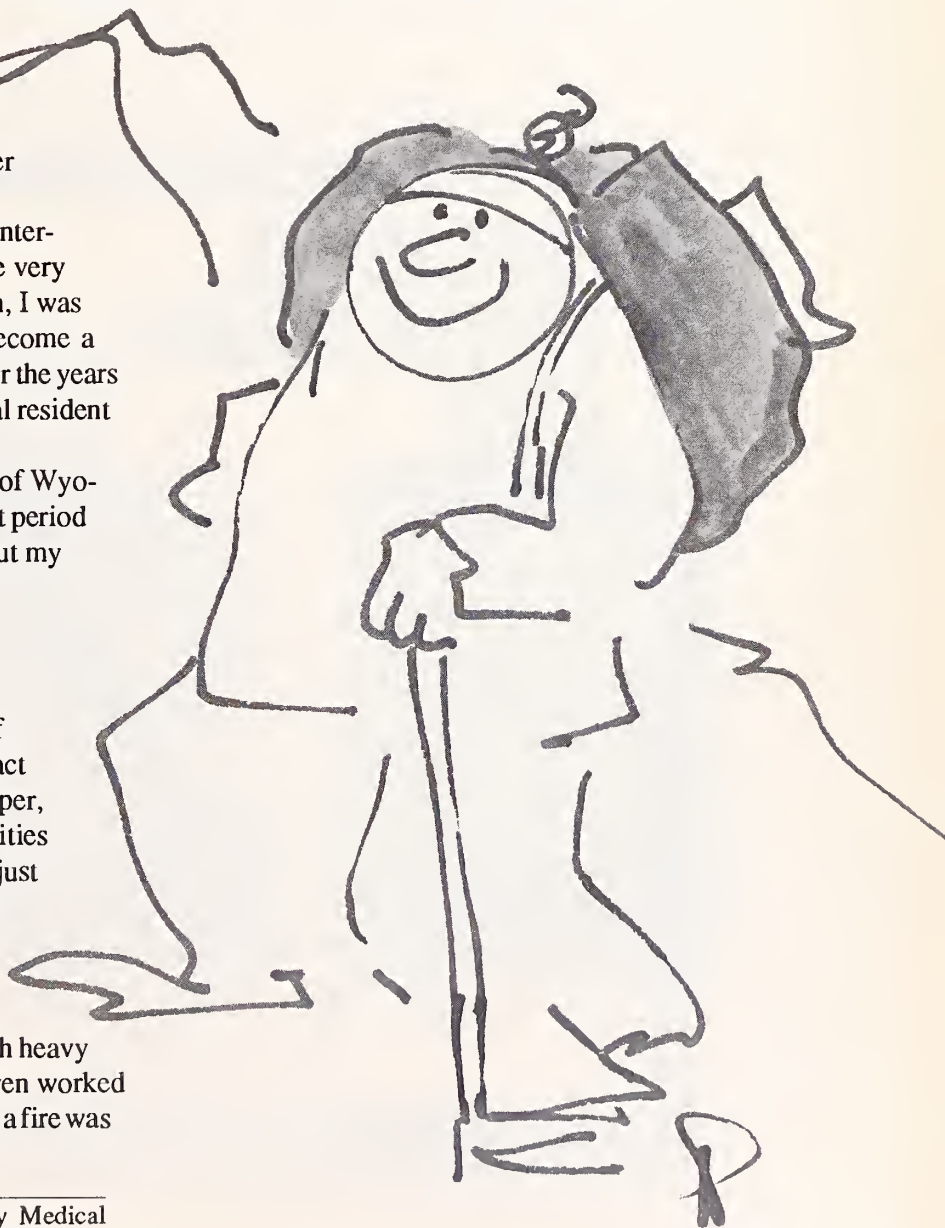
As a John Motley Morehead Scholar at the University of North Carolina, I was given the opportunity to take a five-week survival course in the mountains of Wyoming before beginning my college education. The course was offered by the National Outdoor Leadership School (NOLS) with the purpose of teaching us basic outdoor survival skills. Almost all incoming Morehead Scholars took either this course or courses similar to it.

At the time, I thought the experience would be interesting, but I must admit, I didn't think it would be very pertinent to college or my future plans. Even then, I was interested in the brain and knew that I would become a doctor. This interest in the neurosciences grew over the years and as a result, I am currently a senior neurosurgical resident at the Duke University Medical Center.

Looking back at my time in those mountains of Wyoming, I now realize how much I learned during that period and how useful the experience has been throughout my medical training.

Outdoors, the first lesson one quickly learns is the importance of adaptability. I left the comforts of home and suddenly found myself sleeping under trees at night totally away from any signs of civilization. For five weeks, our group had no contact with the outside world (no newspapers, toilet paper, etc.). Our days were usually filled with varied activities so that no routine ever developed. This ability to adjust quickly to changes in schedules and situations has been invaluable during a residency in which emergencies often disrupt even the most well thought out plans.

Often we would hike twenty miles per day with heavy backpacks. After the long hike, our group of eleven worked together to set up camp and prepare dinner. Starting a fire was



From the Division of Neurosurgery, Duke University Medical Center, Durham 27710. Illustration by Walter J. Pories, M.D.

very important because it allowed us to cook and keep warm. When it rained, it was quite difficult to perform this task. Working together, however, we would somehow get it done. These experiences taught me that in stressful situations, cooperation and teamwork are essential in order to achieve one's goals.

The structure of our survival course was very similar to the structure of any good surgical training program. During the early weeks we learned the basics such as map reading, trout fishing, identification of edible plants, and physical fitness. All these newly acquired skills prepared us for our final challenge. During the last few days, we were left in the mountains without food or water, and were told to meet our instructors in four days at a point approximately thirty miles from our current location. The basic knowledge we had acquired over the preceding weeks gave us the confidence that we needed to successfully perform our task.

So it is with surgery. First one has to learn the basic techniques. This can be a slow and sometimes frustrating process. All surgical residents feel at times that they are not operating enough. However, in the mountains I learned that skill and confidence come from knowledge and experience. It does not happen overnight.

Finally, a point which seems trivial, but that I have found to be invaluable during the rigors of neurosurgical training: it is important to maintain personal hygiene even when in very stressful situations. When very hungry and tired at the end of a long hike without food, we would always take time to brush our teeth and wash in the river before going to sleep. These simple acts of personal grooming work to keep morale high during stressful times.



I write this essay to honor my first surgical teacher, the mountains. □

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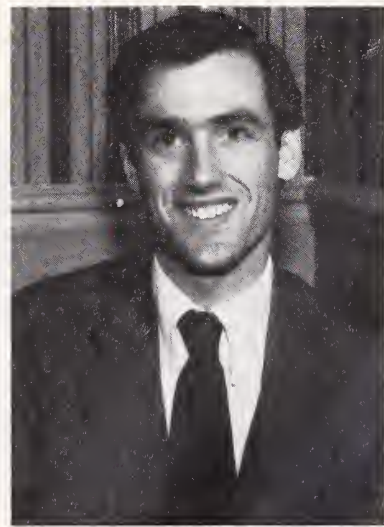
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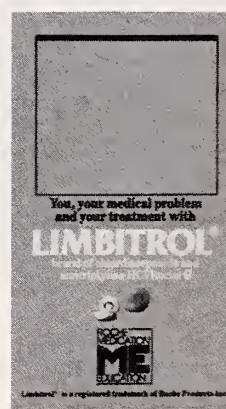
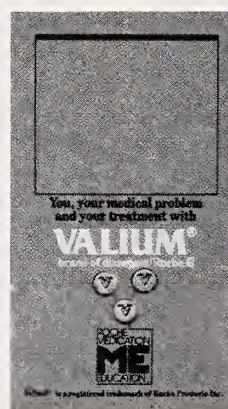
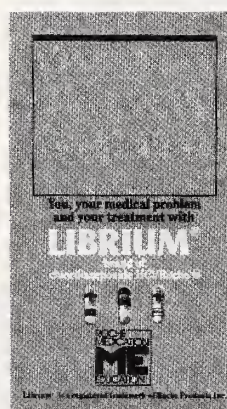
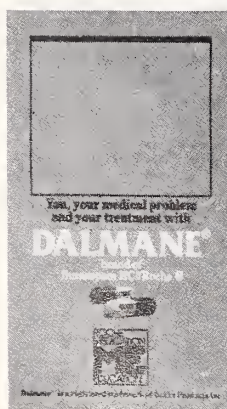


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Running For Office

Louis deS. Shaffner, M.D.

"Any person known to have solicited votes for any office within the gift of the Society shall be ineligible for any office for two years." This bylaw was deleted by the North Carolina Medical Society House of Delegates last year. Why it was originally enacted remains a mystery.

Some have surmised its purpose was to preclude any open campaigning or politicking, practices once considered beneath the dignity of a physician, even among peers. A willing candidate would make him or herself known by good works in a county society or in state committees, and hope friends would make the necessary recommendation for office to the Nominating Committee.

On the other hand I recall hearing a more intriguing explanation. It was that in earlier years there had been vigorous rivalry and campaigning for office within the Society. Over time this had become so bitter and vindictive and such a divisive force among the members that the bylaw addition was necessary. Along with it was the companion bylaw providing that the Nominating Committee keep the names of the nominees for officers secret until the day of the election.

Whatever the true reason, the old bylaws did in their time serve the Society well. The Nominating Committee has had statewide representation and has always been open to suggestions for candidates for office. The usual (but not mandatory) one nominee for each office has precluded a voting contest between two or more capable candidates, after which the losers might with hurt pride back away from further service to the Society. The list of leaders of the Society and their accomplishments through the years attests to their abilities and to their dedication to support the purposes of organized medicine.

Under the old bylaws, however, there were no doubt other members just as capable for office and willing to serve

but whom the Nominating Committee did not consider because no one suggested their names.

The revised bylaws, designating eighteen medical districts replacing the former ten, have this year opened up new opportunities for members to become active in the Society.

Specifically, they encourage members interested in serving as Councilor, Vice-Councilor, or Nominating Committee member to submit their names to their current District Councilor for consideration at the new Annual District Meeting in the fall. Members interested in serving in other elected positions may submit their names for consideration to the Nominating Committee.

In addition to the election of officers, the House of Delegates elects members to fill vacancies on the Board of Medical Examiners, the Commission for Health Services, the Medical Care Commission, the Editorial Board of this Journal, and our Delegation to the American Medical Association.

The present Nominating Committee will in due time announce in the *Bulletin* the vacancies for which it must name nominees for election in November. The Chairman, Dr. Edna Hoffman, urges you to make your wishes known to the Committee, whether you want to suggest a nominee or want a job yourself.

Be forewarned, these offices and positions will take effort and some commitment of time away from your practice. There will however be rewards in the contacts and friends you will make and in your satisfaction of having helped foster, defend, and preserve our profession which has nourished us all. □

Edward C. Halperin, M.D., Book Review Editor

Infectious Diseases in Child Day Care: Management and Prevention. Osterholm MT, Klein JO, Aronson SS, Pickering LK, eds. Chicago: The University of Chicago Press, 1987, 175 pages.

Reviewed by R. Meade Christian, Jr., M.D., Chapel Hill Pediatrics, P.A., Doctor's Bldg., 901 Willow Drive, Chapel Hill 27514.

By 1990 only one in four children in the United States is anticipated to have a non-working parent at home. The relevance and importance of the problem of infectious disease among children in day care is immediately apparent.

The material in this volume represents the proceedings of a symposium held in Minneapolis in 1984 and was initially printed (except for the index and non-technical summaries) in *Reviews of Infectious Diseases*, Vol. 8, No. 4, July-August, 1986. It is considered the first unified approach by experts in pediatrics, infectious disease, public health, sociology, education, law, and day care. The experts at the symposium sought to (1) define the scope of the problem of infectious disease in day care; (2) make recommendations for management and prevention; and (3) define unanswered questions and areas requiring further research. A scan of the list of editors and authors suggests that the sponsors of the symposium knew who to invite.

The volume is divided into six sections. A two-chapter introductory section includes a chapter on the parallels between psychologically and physically healthy day care that should be required reading for all physicians caring for children. Section two contains 14 chapters on specific infectious diseases as they relate clinically and epidemiologically to day care. Much of this information is familiar to pediatricians, but it is nice to have it packaged together. The section on Hepatitis A is an excellent general review and includes specific recommendations for prevention and control. Infor-

mation on HIB is understandably dated. The chapter on HIV is a good example of the whole topic of infectious disease in the day care setting: the best currently available summary of a rapidly changing body of information.

Section three on disease prevention raises more questions than it answers, a fact readily admitted by the authors. Nevertheless, the chapters on design and modification of the day care environment, exclusion policies for sick children, and alternatives for care of the acutely ill child all contain information that was new to me. Clearly we had better stay tuned in to these areas. In most communities the infection control specialist for day care will remain the local pediatrician or family physician.

The two-chapter section on the regulation of child day care and the potential for liability for infectious disease acquired in day care is especially pertinent to day care center health consultants. The same is true for section five on training for parents, providers, regulators, and health personnel. A chapter that lists written resources available for both health consultants and child care providers is of practical importance.

The final section contains a summary of the plenary sessions and workshops at the symposium and includes specific recommendations regarding health policies for day care operation. It also summarizes unanswered questions as well as directions for research. Non-technical summaries of the articles in section two are provided for non-medical personnel.

Physically, the volume is nicely packaged, with excellent quality paper, large type, and an abstract at the beginning of each chapter. An index has been added.

In my opinion this volume belongs in the library of all health care providers who consider themselves consultants to day care centers. Physicians often are informally consulted by parents with questions about how to choose a day care situation, or when to send a sick child back to day care. We are asked by day care providers to consult on questions about infectious diseases, or to help make general policies. We may be asked to collaborate with the local health department in the control of an outbreak of hepatitis A or HIB. We may even be consulted regarding the training of day care providers in disease prevention. For all of these situations, *Infectious Diseases in Child Day Care* is the best resource available to date.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

***Psychiatric Aspects of Headaches.* Adler CS, Adler SM, Packard RC, eds. Baltimore: Williams and Wilkins, 1987, 387 pages.**

Reviewed by Barrie J. Hurwitz, M.D., Associate Professor, Division of Neurology, Duke University Medical Center, Durham 27710.

This book represents an authoritative text on the psychiatric aspects of headache. It has excellent and international contributors, is comprehensive in scope, and up to date in material on the psychiatric aspects of headache. The type is easy on the eyes. Most of the figures and tables are excellent. The chapters are very well referenced and I could only detect one insignificant spelling error.

Specific comments are in order. The first chapter traces the progression of psychosomatic views concerning headache from ancient Mesopotamian civilization to the current century. McDonald Critchley reflects eloquently on the varying nature of pain and the importance of obtaining a pertinent detailed history when dealing with recurrent headache. Russell Packard stresses the importance of clarifying and defining patient expectations. The doctor-patient relationship is discussed in detail by John R. Graham, stressing the importance of the physician's being empathetic toward patients with headaches. Charles and Sheila Adler discuss the psychodynamics of head pain and the effect of stress thereon.

The second section of the book deals with assessment of the headache patient and is largely devoted to evaluating psychological factors as well as psychiatric symptom formation and personality of the patient with chronic headaches. The physical assessment of the headache patient is relegated to a four-and-a-quarter-page discussion by Robert Kunkel. John Edmonson discusses common myths in the management of headaches, including the relative rarity of allergy, sinus disease and temporomandibular joint disease as a cause of headaches. He points out that the answer is not yet available on the question of psychogenic cause of chronic headaches, stressing that emotional factors probably play a role in the production of chronic headaches resistant to pharmacologic therapy.

The psychiatric aspects of tension headache, dysthymic pain disorder, migraine, conversion headache, post traumatic headaches and cluster headaches are then discussed in detail with illustrative case histories. Section four deals with the psychobiology of stress and headache.

Section five deals with treatment. Psychotherapy, behavior modification and bio-feed-back are discussed in detail and in an authoritative fashion. Unfortunately the chapter concerning acute migraine support at the London Migraine Clinic, by Marsha Wilkerson, and the one on perspectives from an in-patient headache unit, by Joel Saper, are separated by chapters dealing with psychotherapy.

This is an attractive, useful book—useful for anyone seeking information in the field of the psychiatric aspects of headache. In this sense the authors succeeded in bridging what they perceived to be a substantial gap in the literature of headache. The shortcomings of this book include a lack of practical advice for the practicing physician, be it the generalist or subspecialist, regarding the detailed examination, physical assessment, appropriate investigations and non-psychiatric management of the various headache syndromes. I believe this book would be most useful to psychologists and psychiatrists dealing with the psychiatric aspect of patients with chronic headaches, and would also be exceptionally useful to practicing neurologists who are already adroit with the initial evaluation of headache patients and who have already separated the ominous headache from the trivial or benign headache syndromes. More comprehensive books on the investigation and management of headache include:

Wolff's Headache and Other Head Pain. Dalessio DJ. 4th Edition. New York: Oxford University Press, 1980.

The Practicing Physician's Approach to Headache. Diamond S, Dalessio DJ. 4th Edition. Baltimore: Williams and Wilkins, 1986.

Neurology Clinics: Symposium on Headache. Packard RC. Philadelphia: W.B. Saunders, 1984, Vol. 1, No. 2. □

In Memoriam

H. Davidson Lloyd, M.D.: A Tribute

Doctor Lloyd. His name is synonymous with Rutherford Hospital. He was an individual committed to providing quality health care.

Doctor Davidson Lloyd, 50, passed away on December 18, 1988. He was a urologist with the Norris Biggs Clinic and on the medical Staff at Rutherford Hospital.

Doctor Lloyd was a graduate of Davidson College and the University of Florida Medical School. He was a member of the North Carolina Medical Society, the Rutherford County Medical Society, and the American Urological Association.

He served as the Chief of Staff at Rutherford Hospital in 1983 and 1984. Doctor Lloyd was appointed to serve on the Board of Trustees at Rutherford Hospital on December 13, 1944 and served in that capacity until his passing. He was past Chief of Surgery at Rutherford Hospital and past president of the Board of Directors of the Norris Biggs Clinic. Doctor Lloyd served as Medical Advisor for Carolina Home Care, Inc.

He was a member of the St. Francis Episcopal Church, member of the Vestry, and church treasurer. Doctor Lloyd was a member of the Kiwanis Club, past president of the Little League of Rutherfordton, and pack master of Cub Scout Pack 165.

He is survived by his wife, Mrs. Susan Mustoe Lloyd and three sons, David Lloyd of Chapel Hill, and Stephen and Kevin Lloyd, both of Rutherfordton.

Doctor Lloyd was a man who for many represented the ideal Christian gentleman. He was a professional in everything he did whether it involved his work, his community, or his church. Doctor Lloyd's friendly spirit will truly be missed by everyone.

North Carolina Medical Society 1989 Meetings

SPORTS MEDICINE SYMPOSIUM

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WARNINGS

- Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (nine of 2,111 patients or 0.43%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
- Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). An acute study of oral diltiazem in patients with impaired ventricular function (ejection fraction 24% ± 6%) showed improvement in indices of ventricular function without significant decrease in contractile function (dp/dt). Experience with the use of CARDIZEM (diltiazem hydrochloride) in combination with beta-blockers in patients with impaired ventricular function is limited. Caution should be exercised when using this combination.
- Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
- Acute Hepatic Injury.** Mild elevations of transaminases with and without concomitant elevation in alkaline phosphatase and bilirubin have been observed in clinical studies. Such elevations were usually transient and frequently resolved even with continued diltiazem treatment. In rare instances, significant elevations in enzymes such as alkaline phosphatase, LDH, SGOT, SGPT, and other phenomena consistent with acute hepatic injury have been noted. These reactions tended to occur early after therapy initiation (1 to 8 weeks) and have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in some cases, but probable in some. (See PRECAUTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing. Ophthalmological events (see ADVERSE REACTIONS section) may be transient and may disappear despite continued use of CARDIZEM. However, skin eruptions progressing to erythema multiforme and/or exfoliative dermatitis have also been infrequently reported. Should a dermatologic reaction persist, the drug should be discontinued.

Drug Interaction. Due to the potential for additive effects, caution and careful titration are warranted in patients receiving CARDIZEM concomitantly with any agents known to affect cardiac contractility and/or conduction. (See WARNINGS.) Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

As with all drugs, care should be exercised when treating patients with multiple medications. CARDIZEM undergoes biotransformation by cytochrome P-450 mixed function oxidase. Coadministration of CARDIZEM with other agents which follow the same route of biotransformation may result in the competitive inhibition of metabolism. Dosages of similarly metabolized drugs, particularly those of low therapeutic ratio or in patients with renal and/or hepatic impairment,

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may require adjustment when starting or stopping concomitantly administered CARDIZEM to maintain optimum therapeutic blood levels.

Beta-blockers: Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated, but available data are not sufficient to predict the effects of concomitant treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities.

Administration of CARDIZEM (diltiazem hydrochloride) concomitantly with propranolol in five normal volunteers resulted in increased propranolol levels in all subjects and bioavailability of propranolol was increased approximately 50%. If combination therapy is initiated or withdrawn in conjunction with propranolol, an adjustment in the propranolol dose may be warranted. (See WARNINGS.)

Cimetidine: A study in six healthy volunteers has shown a significant increase in peak diltiazem plasma levels (58%) and area-under-the-curve (53%) after a 1-week course of cimetidine at 1,200 mg per day and diltiazem 60 mg per day. Ranitidine produced smaller, nonsignificant increases. The effect may be mediated by cimetidine's known inhibition of hepatic cytochrome P-450, the enzyme system probably responsible for the first-pass metabolism of diltiazem. Patients currently receiving diltiazem therapy should be carefully monitored for a change in pharmacological effect when initiating and discontinuing therapy with cimetidine. An adjustment in the diltiazem dose may be warranted.

Digitalis: Administration of CARDIZEM with digoxin in 24 healthy male subjects increased plasma digoxin concentrations approximately 20%. Another investigator found no increase in digoxin levels in 12 patients with coronary artery disease. Since there have been conflicting results regarding the effect of digoxin levels, it is recommended that digoxin levels be monitored when initiating, adjusting, and discontinuing CARDIZEM therapy to avoid possible over- or under-digitalization. (See WARNINGS.)

Anesthetics: The depression of cardiac contractility, conductivity, and automaticity as well as the vascular dilation associated with anesthetics may be potentiated by calcium channel blockers. When used concomitantly, anesthetics and calcium blockers should be titrated carefully.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in *in vitro* bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater. There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded from these studies.

The adverse events described below represent events observed in clinical studies of hypertensive patients receiving either CARDIZEM Tablets or CARDIZEM SR Capsules as well as experiences observed in studies of angina and during marketing. The most common events in hypertension studies are shown in a table with rates in placebo patients shown for comparison. Less common events are listed by body system; these include any adverse reactions seen in angina studies that were not observed in hypertension studies. In all hypertensive patients studied (over 900), the most common adverse events were edema (9%), headache (8%), dizziness (6%), asthenia (5%), sinus bradycardia (3%), flushing (3%), and 1° AV block (3%). Only edema and perhaps bradycardia and dizziness were dose related. The most common events observed in clinical studies (over 2,100 patients) of angina patients and hypertensive patients receiving CARDIZEM Tablets or CARDIZEM SR Capsules were (ie, greater than 1%) edema (5.4%), headache (4.5%), dizziness (3.4%), asthenia (2.8%), first-degree AV block (1.8%), flushing (1.7%), nausea (1.6%), bradycardia (1.5%), and rash (1.5%).

DOUBLE BLIND PLACEBO CONTROLLED HYPERTENSION TRIALS

Adverse	Diltiazem N=315 # pts (%)	Placebo N=211 # pts (%)
headache	38 (12%)	17 (8%)
AV block first degree	24 (7.6%)	4 (1.9%)
dizziness	22 (7%)	6 (2.8%)
edema	19 (6%)	2 (0.9%)
bradycardia	19 (6%)	3 (1.4%)
ECG abnormality	13 (4.1%)	3 (1.4%)
asthenia	10 (3.2%)	1 (0.5%)
constipation	5 (1.6%)	2 (0.9%)
dyspepsia	4 (1.3%)	1 (0.5%)
nausea	4 (1.3%)	2 (0.9%)
palpitations	4 (1.3%)	2 (0.9%)
polyuria	4 (1.3%)	2 (0.9%)
syncope	4 (1.3%)	—
alk phos increase	3 (1%)	1 (0.5%)
hypotension	3 (1%)	1 (0.5%)
insomnia	3 (1%)	1 (0.5%)
rash	3 (1%)	1 (0.5%)
AV block second degree	2 (0.6%)	—

In addition, the following events were reported infrequently (less than 1%) or have been observed in angina trials. In many cases, the relation to drug is uncertain.

Cardiovascular: Angina, arrhythmia, bundle branch block, tachycardia, ventricular extrasystoles, congestive heart failure, syncope.

Nervous System: Amnesia, depression, gait abnormality, hallucinations, nervousness, paresthesia, personality change, tinnitus, tremor, abnormal dreams.

Gastrointestinal: Anorexia, diarrhea, dysgeusia, mild elevations of SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase, thirst.

Dermatological: Petechiae, pruritus, photosensitivity, urticaria.

Other: Amblyopia, CPK increase, dyspnea, epistaxis, eye irritation, hyperglycemia, sexual difficulties, nasal congestion, nocturia, osteoarthralgia, pain, impotence, dry mouth.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. Definitive cause and effect relationship between these events and CARDIZEM therapy cannot yet be established.

Issued 1/89

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Letters to the Editor

On MRNC

To the Editor:

Medical Review of North Carolina (MRNC) has recently issued its annual report. A covering letter signed by Donald Wallace, M.D., President and Charles J. Riddick, Executive Director reports that "during the past 12 months MRNC placed great emphasis on the establishment of close working relationships with ... specialty societies...." During the same period I served as Chairman of the North Carolina Society of Internal Medicine's PRO-Monitoring Project. MRNC steadfastly refused to meet with the North Carolina Society of Internal Medicine. Dr. Wallace stated in several public fora including the 1988 annual meeting of the North Carolina Medical Society and during an October 1, 1988 meeting of the North Carolina Medical Society PRO-Monitoring Committee that MRNC would *not* meet with specialty societies. Dr. Wallace reported that it was MRNC policy to meet only with the North Carolina Medical Society's PRO-Monitoring Committee.

Given this public misstatement of the facts is there any wonder that physicians in North Carolina are skeptical about MRNC and its motivations? Which of MRNC's other public assertions can be believed? Can we believe that the number of physicians sanctioned does not influence the renewal of MRNC's contract? Can we believe that MRNC's physician reviewers are well trained, unbiased and competent? Can we believe that MRNC has no interest in limiting the elderly's access to beneficial hospital services? Can we? I wonder.

E. Rodney Hornbake, M.D.
Eastern Carolina Internal Medicine
P.O. Box 68
Pollocksville 28573

The Emperor's Clothes

To the Editor:

I received a report on the Emperor's clothes last week. A massive mailing (? postage/paper cost/pine trees) arrived consisting of a description of the activities of the Medical Review of North Carolina in the form of a slick (i.e., non-reusable) Madison Avenue type "annual report" describing an extraordinary growth rate for staff and responsibility, and a "product" that is hard to define. For instance, the thousands of pre-admission reviews led ultimately to no denials. Production costs, i.e., the dollars spent by the organization, were not exhibited, not to mention the fact that the "volunteer" time and expense extracted from the hospitals and the doctors is never recognized.

I think we should ask for a re-examination of Parkinson's Law as it seems to have been greatly exceeded. I don't think these clothes are real.

James A. Bryan II, M.D.
Department of Medicine
UNC School of Medicine
Chapel Hill 27599-7005

A comment on the skin self-examination article

To the Editor:

Let me first comment on the usually excellent content of the North Carolina Medical Journal. In the February issue, I was particularly glad to see the patient education/self examination article on melanoma, an area of interest to me (Weinrich EA. 50: 85-6). Obviously, the author meant well, but I thoroughly object to the closing statement "... and check with your dermatologist if you have a suspicious mole or growth." It is entirely within the expertise of many primary care physicians to evaluate such lesions, often biopsy or even ellipse suspicious lesions. Then if necessary, they can be referred to a surgeon, plastic surgeon or dermatologist. Oftentimes a dermatology referral is not that easy for our rural or small town physicians.

Our goal in this area is identification of the "dysplastic" precursor, also exhibiting the ABCDs. I would like to use this handout in our Family Practice Center as a patient handout, but could not do so without changing the last sentence by substituting "physician" for dermatologist.

Donald DeWitt, M.D.
ECU School of Medicine
Department of Family Medicine
Greenville 27858-4354

A comment on Dr. Sanders's article

To the Editor:

In your February, 1989 issue, page 105, was a very misleading article with incorrect information regarding "Prescribing Addicting Medications," by James A. Sanders, Jr., M.D., functioning member of the Committee on Drug Abuse and Pharmacy of the North Carolina Medical Society. Also, on pages 106 and 107 was a Letter to the Editor, "On Drugs and Pharmaceuticals," by Ronald B. Mack, M.D., Chairman, Drug Abuse and Pharmacy Committee, North Carolina Medical Society. Dr. Mack stated that members of his committee were interested in publishing articles on the subject of drug abuse. I hope in the future, that they will do more research. Dr. Sanders made such bold generalizations

regarding certain drugs which, in my opinion, are incorrect. I have been practicing general psychiatry for 20 years and know of many sober alcoholics because they take Diazepam (Valium) on a regular basis and have been doing so for years. They are productive individuals in their community. Diazepam is an excellent anti-anxiety medication and in my opinion, and the opinion of many researchers, is not addicting. I also treat several elderly patients in residential treatment facilities and they were behavioral problems, screaming and fighting, until they were placed on Diazepam 2 mg QID. Since that time, they are manageable and cooperative. I could go on with numerous examples of the helpfulness of Diazepam and I feel that we know more about the Benzodiazepines than most drugs in medicine. In my opinion, they certainly are safe. I assume that many of the individuals needing Diazepam on a chronic basis, either do not have enough GABBA cells in their brain or do not produce enough GABBA and thus, need Diazepam chronically. There is no doubt that some individuals need to be on Diazepam on a chronic basis. Show me an individual who says he is addicted to Valium, and I can probably show you an individual suffering from a Generalized Anxiety Disorder and with many Histrionic Personality Features.

Dr. Robert Eliot's research on cardiology over the past 20 years indicates that stress is the primary factor in heart attacks. There is an excellent videocassette, "Stress, The Hot Reactor," by Dr. Eliot and every physician would benefit from watching his video. I will be happy to show Dr. Sanders numerous cardiac patients who had coronary chest pain on a regular basis and took nitroglycerin several times per week until started on a small dose of Diazepam QID on a regular basis. Since being on the Diazepam, they have had no chest pain.

In my opinion, it is important for the Committee on Drug Abuse and Pharmacy of the North Carolina Medical Society to realize that there are numerous physicians in North Carolina who feel that Diazepam and the Benzodiazepines are the safest drugs in medicine.

Robert G. Crummie, M.D., Psychiatrist
The Cliffdale Clinic
6245 Cliffdale Road
Fayetteville 28314

Dr. Sanders's response to Dr. Crummie

To the Editor:

Dr. Robert G. Crummie's testimonial for benzodiazepines is in opposition to current research findings and medical practice. His assertions with my answers follow:

1 *Benzodiazepines are not addicting.* Even the drug companies who make them warn that they may cause psychological and physical dependence. Read the PDR and AMA's book, *Drug Abuse*.

2 *Diazepam may be used to prevent alcoholics from drinking.* Benzodiazepines are cross addicting with alcohol and if given to an alcoholic are likely to be abused and/or

precipitate a bout of drinking.

3 *Diazepam at a dose of 2 mg qid makes elderly nursing home patients manageable and cooperative.* Oversedation of nursing home patients is a scandal in this country and is currently receiving much attention in the medical literature and the news. Diazepam has an elimination half life of 20-50 hours and possibly longer in the elderly. Usual therapeutic doses may produce toxic blood levels in the elderly.

4 *Diazepam is the drug of choice to treat angina pectoris because "stress is the primary factor in heart attacks."* Stress can certainly be a factor in precipitating an angina attack, but atherosclerosis of the coronary arteries is the primary factor in angina pectoris and myocardial infarction.

As medical director of an alcohol and drug rehabilitation program and a nursing home, I treat many patients prescribed benzodiazepines carelessly or mistakenly by physicians like Dr. Crummie.

James H. Sanders, Jr., M.D., FFAFP, FAGS
Bldg #1, Medical Park Drive
Brevard, NC 28712

Dr. Mack's reply to Dr. Crummie

To the Editor:

In answer to Dr. Crummie's letter let me begin by saying—Thank Goodness for Voltaire—who said—"I may not agree with what you say but I will defend to my death your right to say it."

In the February 1989 issue of the NCMJ (50:105) Dr. James H. Sanders gave his suggestions for decreasing the prevalence of prescription drug addiction in our state. Dr. Sanders is a respected member of the medical community in North Carolina. He is a Family Practitioner with many, many years of experience and when he talks, I listen. However, he was *speaking for himself* and not for the Committee on Drug Abuse and Pharmacy or the Medical Society and we should have made that clearer in our "Letter to the Editor" in the same issue of the NCMJ, Page 106.

In his paper Dr. Sanders suggests that practitioners "not use benzodiazepines for anxiety symptoms for more than a few weeks because they lose their effectiveness and they are addicting." This is what Dr. Sanders believes and obviously Dr. Crummie does not agree with him. But because Dr. Sanders is not guilty of any crime or blasphemy we will ask the Ayatollah not to ask for his assassination, please, not another Salman Rushdie. Both physicians have been in practice for several decades and have honorable disagreements on this issue. When I am not sure about a medical issue I try to seek help from the literature.

The current literature mentions several salient features that can be pertinent to this argument: (1) benzodiazepines are of low order of toxicity *unless ingested with other CNS depressants* such as ethanol, barbiturates, etc.¹ (In fact, my experience in dealing with patients who overdose on this class of drugs suggests that the only way to die from them is to be hit by a truck hauling tons of diazepam). (2) Seizures

have been reported during withdrawal from benzodiazepines, especially if withdrawal is abrupt.^{2,3} (3) Tolerance is probably negligible but this issue remains controversial.⁴ True physiologic addiction does occur, most commonly reported with high doses, but it has been documented with therapeutic doses.⁵ However, physiological dependence^{6,7} can develop to therapeutic doses of benzodiazepines. Furthermore, the literature states that physiological dependence is more likely to develop in people who have been heavy users of other sedative drugs or ethanol.⁸

What is the truth here? I suggest the readers use their own experience and review the literature to help in their decision making.

At the risk of obfuscating the issue let me add that there is now available an antidote to severe benzodiazepine intoxication—R₀15-1788-flumazenil—for those patients ingesting benzodiazepines and ethanol, those patients experiencing an interaction between benzodiazepine and other potential respiratory depressant agents used in anesthesia, etc.⁹

Finally, let me congratulate both Dr. Crummie and Dr. Sanders for stating their views explicitly and for seeking the truth.

Ronald B. Mack, M.D., Chairman
Committee on Drug Abuse and Pharmacy
North Carolina Medical Society

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- 2 Mackinnon GL, et al. Am J Drug Alcohol Abuse 1982;9:19.
- 3 Floyd JB Jr., et al. Hallucinations following withdrawal of valium. J Ky Med Assn 1976;74:549.
- 4 Greenblatt DJ, et al. Current status of benzodiazepines, Part two. N Eng J Med 1983;309:410.
- 5 Marks J. The benzodiazepines. Lancaster England: MTP Press, 1978.
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- 8 Woods JH, Katz JL, et al. Use and abuse of benzodiazepines. JAMA 1988;260:3476.
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On William Harvey's Portrait

To the Editor:

I appreciated the handsome reproduction of the portrait of William Harvey on the cover of the February 1989 issue of the NCMJ and the account of its acquisition in the same issue (Cavanagh GST, p. 78).

In the interest of accuracy, however, I believe that the assertion that Harvey had been "medical attendant to three Stuart kings . . . and later President of the College of Physicians" should be corrected.

Harvey was, I believe, medical attendant to only two Stuart kings; namely, James I and Charles I. Charles I was

beheaded in 1649 when Harvey was 71 years of age, and Charles II did not ascend the throne until 1660, some three years after Harvey's death in 1657 at the age of 79. Also, though he served the College in many other important capacities, I do not believe that Harvey was ever President of the College of Physicians, because he refused the post on account of age and infirmity when it was offered to him in 1654.

It is interesting to speculate on Harvey's actual physical appearance at the time that the portrait was thought to have been painted in the 1650s. After Charles's execution in 1649, Harvey was fined and branded as a "delinquent" and forbidden to come within 20 miles of London; so, he thereafter lived modestly with his brothers in the country. His brothers were thriving "Turkey merchants"; i.e., importers and traders with Turkey and the near East, and Harvey himself had amassed a sizable fortune, so that he expected a comfortable old age in spite of his political inconveniences. However, by the time he was offered the Presidency of the College of Physicians in 1654, Harvey was 76 years old and had become crotchety, racked by kidney stones and gout, and at times severely depressed.

The Roberts portrait depicts a mature man of thoughtful mien and quiet, unperturbed bearing suggesting confident health and vigor. It does not seem to me to be compatible with a man of Harvey's age and condition in the 1650s and I suspect that this portrait was copied from an earlier one of a younger Harvey. Indeed, one of the better known of Harvey's portraits is the one by Cornelius Jansen for which Harvey sat at the peak of his career during the reign of Charles I, and it portrays a man who appears to me to be even older than the subject of the portrait shown on the cover of the NCMJ. As was pointed out, however, the explanation would seem to be that Harvey sat for his portrait several times at various stages of his life, and it was not unusual for an artist to produce on demand a new version based on a composite of previous portraits.

At any rate, the portrait happily served to stimulate my imagination to visit again a period that has intrigued me and to venture suppositions about a man who has fascinated me from time to time in the past.

Walter Brodie Burwell, M.D.
317 Orange Street
Henderson, N.C. 27536

References

- 1 Bendiner E. The revolutionary physician of kings: William Harvey. Hosp Pract, Nov. 1978.
- 2 Medical milestone. M.D. Magazine, April 1978.

Mr. Cavanagh's reply to Dr. Burwell

To the Editor:

Dr. Burwell displays an impressive knowledge of Harvey's life and is of course correct that there were only two Stuart kings during his lifetime whom he could have served

as physician extraordinary. As to his "presidency" of the College of Physicians, Munk's Roll, the official record of the R.C.P., states that on September 30, 1654, Harvey was elected to the office of President but shortly after declined the office.

Painters, and even photographers, flatter their subjects to varying degrees, and arranging undated portraits by the apparent age of the sitters is a risky business. The well-known portrait for which Dr. Burwell says Harvey sat at the peak of his career is no longer thought by experts to be by Cornelius Janssen. Unfortunately it was the attribution to Janssen that led to the belief that it was painted in the 1640s, for Janssen left England in 1648. In his book, *The Portraiture of William Harvey*, Sir Geoffrey Keynes was only able to say that according to tradition the picture has been in the possession of the R.C.P. since before 1666. It might well be later than the Roberts picture and both probably date from the 1650s.

G.S.T. Cavanagh
Curator, Trent Collection
Duke Medical Center Library
P.O. Box 3702
Durham 27710

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Seventh Annual ECU Biotechnology Symposium

Place: Greenville

Credit: 8 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

April 14-15

Advanced Cardiac Life Support Provider Course

Place: Asheville

Credit: 16 hours

Fee: \$200 or \$100 for recertification

Info: Daniel L. Dolan, MD, Course Director, MAHEC, 501 Biltmore Ave., Asheville 28801. 704/257-4419

April 16-19

Administrative Skills II: Planning Change and Conflict Resolution

Place: Quail Roost Conference Center, Rougemont

Credit: 20 hours Category I AMA, AAFP 2.0 CEU

Info: Cindi Easterling, Office of CME, DUMC, Durham 27710. 919/684-6978

April 17-21

Diagnostic Ultrasound: Obstetrics

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

April 21-22

Pediatric Post-Graduate Seminar

Place: Winston-Salem

Credit: 9 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray Sch. of Med., Winston-Salem 27103. 919/748-4450

April 23-26

Sixteenth Annual Regional Conference on Maternal and Child Health, Family Planning, and Services for Children with Special Health Needs

Place: Chapel Hill

Fee: \$45 if paid by April 16; \$50 if paid on-site

Info: Office of CME, School of Public Health, CB #8165-Miller Hall, UNC, Chapel Hill 27599-8165. 919/966-4032

April 24-25

Concepts in Neonatal Pediatric Respiratory Care

Place: Chapel Hill

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

April 24-28

Diagnostic Ultrasound: Radiology (Abdomen)

Place: Winston-Salem

Credit: 7 hours per day Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

April 27-May 1

Learning Disorders Course

Place: Chapel Hill

Credit: Approximately 28 hours Category I AMA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

April 28-29

Orbital and Oculoplastics

Place: Winston-Salem

Credit: 9 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray Sch. of Med., Winston-Salem 27103. 919/748-4450

April 28-29

Frank R. Lock Symposium in OB-GYN

Place: Winston-Salem

Credit: 10 hours Category I AMA

Fee: \$150

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May 1-5

Diagnostic Ultrasound: Neurovascular

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

May 2-5

Radiology Review Course

Place: Research Triangle Park

Credit: Category I, CEU

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May 9-10

2nd Rheumatology and Immunology Symposium

Place: Durham

Credit: Category I, CEU, AAFP

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May 10-12

Diagnostic Ultrasound: Arterial/Venous Doppler

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

May 11, 12

ACLS Provider Course

Place: Raleigh

Credit: 16 credits, AAFP

Fee: \$150

Info: Helen Creech, R.N., Course Coordinator, Rex Hospital, 4420 Lake Boone Trail, Raleigh 27607. 919/783-3161

May 11, 18, June 8, 15
The Future of Public Health
Place: Asheville, Winston-Salem, Greenville, Fayetteville,
respectively
Fee: \$40
Info: Brenda Mauer, Registrar, Office of CME, UNC School
of Public Health, CB #8165, Miller Hall, Chapel Hill
27599-8165. 919/966-4032

May 15-19
Diagnostic Ultrasound: Echocardiography
Place: Winston-Salem
Credit: 7 hours Category I AMA
Info: Registrar, Ultrasound Center, Bowman Gray School of
Medicine, Winston-Salem 27103. 919/748-4505

May 19
Recent Advances in Psychiatry
Place: Winston-Salem
Credit: 6 hours Category I AMA
Fee: \$100
Info: Sally H. Gulley, Division of CME, Bowman Gray Sch.
of Med., Winston-Salem 27103. 919/748-4450

May 19-20
The 18th Annual Pediatric Pulmonary/GI Program
Place: Durham
Fee: \$100
Info: Alexander Spock, M.D., DUMC, Box 2994, Durham
27710. 919/681-3364

May 20
Update in Pathology
Place: Greenville
Info: Mary C. Valand, Office of Continuing Medical
Education, Box 7224, Greenville 27835-7224. 919/
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May 20
The Value of Cardiac Rehabilitation
Place: Fayetteville
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Info: Denis Carpenter, Patient Education, Cape Fear Valley
Medical Center, P.O. Box 2000, Fayetteville 28302.
919/323-6151

May 22-23
Diagnostic Ultrasound: Urology
Place: Winston-Salem
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Info: Registrar, Ultrasound Center, Bowman Gray School of
Medicine, Winston-Salem 27103. 919/748-4505

June 5-9
Diagnostic Ultrasound: Obstetrics
Place: Winston-Salem
Credit: 7 hours Category I AMA
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June 7-11
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Place: Greenville

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June 12-16
Diagnostic Ultrasound: Radiology (Abdomen)
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VASOTEC®

(ENALAPRIL MALEATE | MSD)

Contraindications: VASOTEC® (Enalapril Maleate, MSO) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

Warnings: *Angioedema:* Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

Hypotension: Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Heart failure patients given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in heart failure patients), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, *Drug Interactions* and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

Neutropenia/Agranulocytosis: Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Precautions: *General:* *Impaired Renal Function:* As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

Evaluation of patients with hypertension or heart failure should always include assessment of renal function. (See DOSAGE AND ADMINISTRATION.)

Hyperkalemia: Elevated serum potassium (>5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See *Drug Interactions*.)

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Information for Patients:

Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

NOTE: As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions:

Hypotension: Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

Agents Causing Renin Release: The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Dihydropyridine Cardiovascular Agents: VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methylglucuronides, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

Lithium: A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. Although a causal relationship has not been established, it is recommended that caution be exercised when lithium is used concomitantly with VASOTEC and serum lithium levels should be monitored frequently.

Pregnancy—Category C: There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies in pregnant women. VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: Milk in lactating rats contains radioactivity following administration of 14 C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Adverse Reactions: VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

Hypertension: The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

Heart Failure: The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

Cardiovascular: Myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, *Hypotension*), cardiac arrest, pulmonary embolism and infarction; rhythm disturbances; atrial fibrillation; palpitation.

Digestive: Ileus, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis.

Nervous/Psychiatric: Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

Urogenital: Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION), prostatic hypertrophy.

Respiratory: Bronchospasm, rhinorrhea, asthma, upper respiratory infection.

Skin: Herpes zoster, pruritus, alopecia, flushing, photosensitivity.

Dther: Muscle cramps, hyperhidrosis, impotence, blurred vision, taste alteration, tinnitus.

A symptom complex has been reported which may include fever, myalgia, and arthralgia; an elevated erythrocyte sedimentation rate may be present. Rash or other dermatologic manifestations may occur. These symptoms have disappeared after discontinuation of therapy.

Angioedema: Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

Clinical Laboratory Test Findings:

Serum Electrolytes: Hyperkalemia (see PRECAUTIONS), hyponatremia.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g % and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

Other (Causal Relationship Unknown): In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported.

Liver Function Tests: Elevations of liver enzymes and/or serum bilirubin have occurred.

Dosage and Administration: *Hypertension:* In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, *Drug Interactions*.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

Dosage Adjustment in Hypertensive Patients with Renal Impairment: The usual dose of enalapril is recommended for patients with a creatinine clearance >30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤ 30 mL/min (serum creatinine ≥ 3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

Heart Failure: VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily after the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, *Drug Interactions*.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, *Pharmacodynamics and Clinical Effects*.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

Dosage Adjustment in Heart Failure Patients with Renal Impairment or Hyponatremia: In heart failure patients with hyponatremia (serum sodium <130 mEq/L) or with serum creatinine >1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, *Heart Failure*, WARNINGS, and PRECAUTIONS, *Drug Interactions*.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD representative or see Prescribing Information. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19386.

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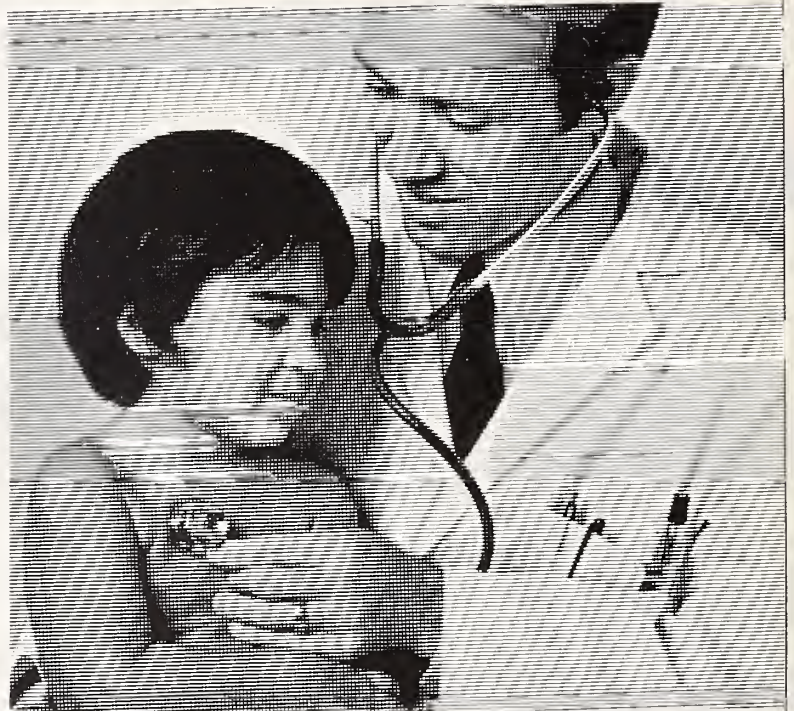
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NORTH CAROLINA MEDICAL JOURNAL

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North Carolina Medical Journal

F O R D O C T O R S A N D T H E I R P A T I E N T S

Contents / May 1989, Volume 50, Number 5

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The Effects of a Medical Malpractice Judgment in North Carolina

Thomas J. Stevens, Attorney at Law

Physicians today practice in an environment in which the risk of a malpractice claim is always present. The proliferation of malpractice litigation along with soaring malpractice insurance premiums have created major social and economic concerns for our generation. The purpose of this article is to outline the current law in North Carolina with respect to the effects of malpractice judgments. The format includes a series of questions and answers designed to give the reader a general understanding of the law in North Carolina as it relates to a judgment creditor's rights against an individual's assets.

Q. In the event I am sued for malpractice and lose, what is the effect of the judgment against me?

A. A judgment resulting from a malpractice action in North Carolina is a lien on all real property in each county where the judgment is docketed. This means that, if the property is in your name individually, you would not be able to sell or encumber the property without satisfying the judgment. In addition, the judgment creditor could proceed to a judicial sale of your property to satisfy the judgment. The judgment would also give rights to the judgment creditor to proceed against any personal property standing in your name alone. This would be done through a levy by the sheriff on the personal property and a sale thereof. The judgment against you would be good for 10 years and could be renewed by the judgment creditor for another 10 years so that the total life of the judgment could be 20 years.

Q. Could a judgment creditor obtain a lien and force me to sell my home?

A. Yes, if the property is titled in your name alone. However, in North Carolina, if real estate is owned jointly by husband and wife as tenants by the entirety, the property is not subject to the individual debts of either spouse. Only joint obliga-

tions can be satisfied out of such property. In the usual case, the personal residence is held by the husband and wife as tenants by the entirety, and thus would not be subject to attack by a judgment creditor against either spouse.

All real estate can be held as tenants by the entirety in North Carolina. On the death of either spouse, the jointly held real estate passes to the survivor. This result has death tax ramifications which should be considered on an individual basis.

Q. What about joint bank accounts?

A. In North Carolina, joint bank accounts in the names of husband and wife are subject to attachment by judgment creditors against one spouse to the extent that the funds can be traced to the debtor spouse. If the contributions to the account cannot be traced, the account will be considered owned equally by the husband and wife.

Q. If a malpractice judgment is rendered against me which cannot be satisfied by my malpractice insurance coverage, could I go into bankruptcy and have the judgment discharged?

A. In the usual situation, the malpractice judgment would result from a finding of negligence. In this situation, the malpractice judgment should be dischargeable in bankruptcy. However, if the judgment is based on fraud or willfulness, then the judgment probably would not be dischargeable in bankruptcy. In the event, however, the judgment is based on negligence and is thus dischargeable, the bankruptcy route may not be advisable since your individual assets will be subject to the claims of your creditors.

Q. How would bankruptcy affect my retirement plan assets?

A. The Federal bankruptcy law was substantially amended a few years ago. One of the provisions of the new law allows each state to adopt the exemptions that are allowed at the Federal level for bankrupts or to adopt their own exemptions. North Carolina has elected to use its own exemptions in the

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bankruptcy situation. The exemptions that are available, however, are extremely limited. They include \$7,500 in real estate, \$1,000 in a car and \$2,500 in other personal property. Accordingly, if a judgment is rendered against you in North Carolina and you elect to go into bankruptcy to discharge it, the balance in your retirement account would be an asset which would have to be put into the bankruptcy proceeding and paid to satisfy all listed liabilities.

Q. Absent bankruptcy, are my retirement plan assets protected?

A. Under the Employee Retirement Income Security Act of 1974, known as ERISA, all tax qualified retirement plan trusts must contain a "spendthrift" provision that the benefits payable to the participants cannot be assigned, attached, alienated or seized by judgment creditors (including malpractice creditors). This law was intended to protect the retirement benefits of participants in qualified retirement plans from having their future financial security jeopardized to pay current obligations. The only exception other than bankruptcy is a provision that allows a retirement trust to make payments to a spouse or former spouse or child, or a plan participant to meet alimony or support orders of a court.

Since the adoption of ERISA, there have been a number of cases in other states brought by judgment creditors attempting to attach or seize assets in retirement trusts. In almost all cases, the courts have refused to permit such attachment or seizure prior to the retirement of the participant. There are a few cases, however, where the judgment creditors have been successful. Those cases have involved a number of factors that indicated to the court that the funds were not in fact being accumulated for reasonable retirement needs, but were being utilized to secure significant tax advantages without postponing the use of the funds by the professional. Among the compromising factors that were present in those cases were the following: the plan participant owned the business which established the plan, had extremely large balances in the retirement trust, was the sole trustee of the retirement trust, took frequent distributions or loans from the retirement trusts prior to retirement, and for all practical purposes had complete control over the timing of the distributions from the retirement trusts. In such circumstances some courts have found that the funds were not being held for retirement purposes, and thus it was allowable for the judgment creditors to attach or seize the assets. None of these cases has yet been reviewed by the United States Supreme Court.

It should be noted that individual retirement accounts (IRAs) are not subject to the anti-alienation provisions of ERISA. Therefore, they are not protected from judgment creditors.

Q. Are life insurance policies protected?

A. There is a special exemption for life insurance under North Carolina law. Under this exemption, a creditor cannot reach the proceeds of a life insurance policy or the cash surrender value, provided the policy is payable either to the person's spouse or children and not to his or her estate.

Q. Can a judgment creditor garnish my salary from my corporation?

A. Under North Carolina law, a creditor cannot garnish a person's salary for wages which were earned during the prior 60 days or for future wages. There are exceptions for alimony and child support.

Q. I am a shareholder in a professional corporation. Does this give me any protection against malpractice claims which arose out of procedures performed by other shareholders in the corporation?

A. Until recently, it was thought that the incorporation of a professional practice in North Carolina would shield each shareholder from the acts of the other shareholders. However, the North Carolina Court of Appeals, in a 1985 case, held that, for purposes of malpractice claims, the shareholders of a professional corporation would be treated as general partners. Accordingly, a judgment against one would be a judgment against all. Some commentators question the correctness of this decision. Perhaps the North Carolina Supreme Court or the General Assembly will resolve this issue.

Q. Would it be wise for me to give assets to my wife and children?

A. Gifting of assets to family members does not guarantee that your assets will be immune from creditors. If a creditor can show that you transferred your assets to avoid your debts, the transfer can be set aside. To be successful a gifting program requires careful planning.

The purpose of this article has been to explain in general terms the effect of a malpractice judgment in North Carolina. The principles involve complex areas of law. There are many things to consider before rearranging assets. Each person's situation is different and should be studied carefully before any wholesale changes are made. □

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A Risk Management Checklist

For Academic and Complex Community Medical Centers

Thomas F. O'Brien, Jr., M.D.

The provision of high-quality, scientifically-based medical care to patients has been the traditional hallmark and responsibility of academic clinicians within tertiary care medical centers. Many benefits accrue to the variety of individuals in these centers. Participation in advanced therapeutics under the direction of competent and caring faculty physicians provides essential educational experiences for physicians-in-training at all levels. Standards of personal performance that result in technically excellent outcomes and a high degree of patient (and family) satisfaction clearly have intrinsic worth.

In addition, there are other tangible benefits of major importance to all full-time faculty members in academic medical centers; namely, reductions in medical liability insurance premiums and the costs of adverse malpractice awards.

In today's environment, the academic "halo" under which faculty physicians provided medical care in previous years is rapidly disappearing. No longer is the academic clinician protected by the presumption that medical care delivered in the academic medical center is inherently superior, and hence, more immune to allegations of malpractice. Furthermore, one senses a growing public expectation that treatment outcome in complex cases in these institutions should necessarily be more favorable because of the availability of superior technical resources and personnel. Thus, it could be argued that academic medical centers are held to a higher standard of care than the community at large. All of this despite the fact that the patients interact with a large number of persons who are at various stages of training in health care professions.

Risk Management Techniques

Given these circumstances, not only administrators in academic medical centers, but more particularly their clinical faculties, must give increased attention to risk management in their daily activities. It has been shown that the cost of insuring against medical liability can be substantially reduced by the application of proven risk management techniques. These include:

- 1 A carefully documented and maintained medical records system.
- 2 Open communication with patients, family members and other interested parties.
- 3 Appropriate supervision of physicians-in-training and physician extenders.
- 4 A favorable ambience in the patient care environment.
- 5 "Fail-safe" systems for the avoidance of medical errors.
- 6 A low-threshold incident reporting system.
- 7 The development of suitable techniques for managing socially irresponsible or hostile patients and families.
- 8 Periodic education and performance review of professional and nonprofessional personnel in risk management techniques.

Further analysis of the above reveals the following component details.

1 The Medical Records System

The medical records system, as a minimum, includes the following written documentation and procedures:

- Up-to-date patient demographics.
- Identification of referring physician(s).
- A current problem list (including allergies).
- Time and dated entries of progress and procedure notes.
- Careful recording of therapeutic prescriptions and refills.
- Notation of canceled appointments.
- Legible entries that are typewritten or otherwise mechanically reproduced wherever possible.

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Original copies of laboratory reports and other special studies.

Timely filing of all pertinent data.

A strict system for chart access and control.

2 Patient/Family Communications

Effective patient-related communications include the following elements:

Written documentation of informed consent for all procedures (including patient photographs).

Timely reporting of test results to patients and family (where appropriate).

Clearly stated therapeutic instructions.

Timely reports to referring physicians.

A patient advocate (ombudsman) who also serves as an educator for personnel with patient contact.

3 Physician-in-Training and Physician Extender Supervision

The large numbers of health care trainees in academic medical centers pose special liability risks. The following areas, therefore, require special attention:

Clear identification of physician and non-physician members of the health care team.

Coordination of patient and family communications with the attending physician.

Careful review and countersignature of progress notes and other chart entries.

Adequate supervision of hazardous technical procedures.

Ample discussion of diagnostic and therapeutic plans among members of the health care team.

4 Ambience of the Medical Care Environment

Patient satisfaction will clearly be enhanced by:

A positive and professional attitude and demeanor of secretaries and receptionists.

A positive and professional attitude in nursing services.

Reasonable waiting time standards (with communication regarding delays).

Comfortable and attractive office facilities.

Prompt handling of insurance claims.

Prompt and reasonable billing techniques for professional services.

5 Fail-Safe Systems

"Fail-Safe" systems should be developed for the following areas:

Prescription writing (including refills and dosage changes).

Documentation of telephone communications with patients and family members.

"Bad lab"* identification and physician notification system.

Follow-up procedures for cancelled appointments.

Cross-coverage for professional services.

Maintenance schedules for (non-hospital-based) diagnostic and therapeutic equipment.

6 Incident Reporting System

A low threshold and confidential incident reporting system provides the cornerstone of an effective risk management program. It must emphasize the following points:

Early reporting of non-standard events to a risk manager.

Personnel awareness of incident reporting as the database for future loss prevention.

Prompt and non-punitive corrective strategies.

Prompt and fair compensation to patients who sustain losses due to treatment-related injury.

7 Interactions with "Difficult" Patients and Families

Increasingly, it appears that the current social milieu provides settings for hostile interaction between patients and members of the health care team. The latter often provide a trigger point for allegations of malpractice. Underlying such encounters are usually one or more of the following:

Alcohol/drugs/tobacco abuse.

Sexually transmitted diseases.

Social stresses (family problems, economics, etc.).

Irresponsible or poorly compliant patients (diet, medications, return appointments, etc.).

Constant diligence and education in the avoidance of hostile patient interactions should be part of all medical center training programs.

8 Performance Review for Personnel

Within an academic medical center there is often considerable turnover of personnel; usually physicians-in-training, health technician trainees, and to a lesser degree clinical faculty and other supporting personnel. Hence, a review of risk management principles and adherence must be provided to all levels of the health care team periodically. This could be accomplished in the following manner:

For clinical faculty, during an annual review by the clinical chairperson.

For nursing, annually by the clinic director and risk manager.

For non-professional personnel, annually by the risk manager and patient advocate (ombudsman). For house staff, during initial orientation and regularly scheduled educational conferences.

This summary of risk management topics can serve as a checklist for administrators within academic medical centers. Very likely, the list is not all-inclusive. Furthermore, the principles enumerated are not reserved for tertiary care centers, though this is the major focus. It is my impression, however, that many smaller hospitals within the state have been more attentive lately to risk management issues than our larger medical centers. □

*Laboratory reports containing significantly abnormal results (positive PAP, etc.)

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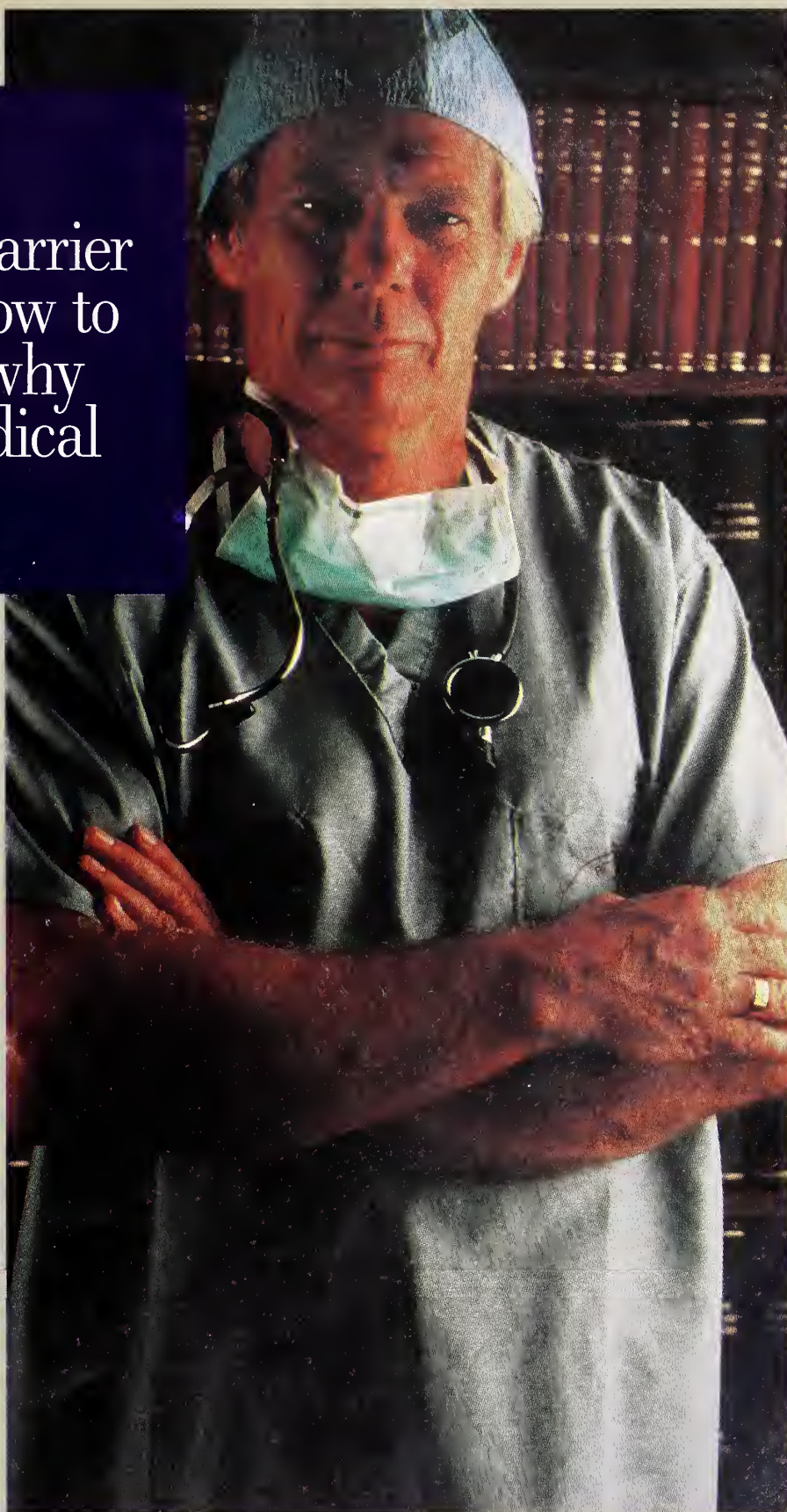
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Physician Employment Contracts

Keith M. Korenchuk, J.D., M.P.H.

In the increasingly competitive health care environment of North Carolina, physicians and medical groups are constantly confronted with changes in their practices and with growing stresses in the relationships among themselves. For several reasons, these changes and stresses call for a re-examination of physician employment contracts.

First, physicians no longer spend their entire career in one group or in one city. When a physician severs a relationship with a group, disputes are likely to arise, and the employment contract will be examined closely in an effort to resolve them.

Second, there are problems with the increasing size of groups. As groups grow in size, individual physicians feel less a part of management and more like employees. To the extent that this difference in perspective develops, disputes are likely to arise in the employment relationship, and the parties are likely to resort to the written contract to resolve them.

Finally, many employment contracts are prepared when the group is small, or drawn from a perspective that unduly favors the individual at the expense of protecting the "group." It is this "group" perspective that is lacking in many agreements and that is necessary when the group goes through the transition from a collection of individual practitioners to an institution with its own identity.

Guidelines for Re-evaluation

While an employment agreement should reflect the history and personality of the group, certain basic elements should also be included in the document. The following may be useful to medical groups in the process of revisiting the basis on which the physician-medical group relationship is maintained.

1 General statement of employment. Each physician's contract should contain a general statement that the physician and the medical group create an employment relationship that is based upon the terms and conditions set forth in the employment agreement. This general paragraph is the basis for defining the rights and obligations of the parties and specifically references the other provisions of the agreement.

2 Duties. The contract should contain a provision that describes the duties the physician is expected to perform. These provisions often only generally describe the duties of the physician, but require that these duties be performed within the policies, rules and procedures of the group as established from time to time. The physician should agree to faithfully serve the group and to devote such time as may be necessary for the adequate performance of duties. Some groups may also wish to include stronger language in this section to require the physician to perform duties in such areas and at such times and locations as may be required by the medical group.

3 Other activities. Contracts should contain a provision prohibiting the physician from engaging in any activity determined to be detrimental to the group, or which results in the physician's devoting less than full time to the practice of medicine for the medical group. From the perspective of the medical group, it is important to establish this full-time commitment. It is also important for the group to obtain the agreement of the physician not to engage in other work for anyone else without the prior written consent of the medical group. From the individual physician's perspective, to the extent that the physician desires to engage in other practice-related activities or independent teaching or research, specific reference should be made to these activities so that no questions will arise in the future regarding the propriety of these activities.

4 Compensation. Another major goal of the employment contract, from both the group and the physician perspective, is to set forth accurately the method of compensation for the physician. Compensation systems range from a straight

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salary, to an exclusively incentive system where a physician is paid solely on the basis of production, to a cost-based system where the efficiency of a physician's practice determines the amount of compensation. A full discussion of physician compensation is beyond the scope of this brief article. From the perspective of contract content, however, it is in the interest of the medical group to leave some discretion to its board of directors to make modifications in its compensation system. Without this flexibility to make modifications, a new contract or amendment must be executed each time a change in the compensation system is implemented. While a flexibility provision gives the individual physician less certainty in his or her relationship with the medical group, the medical group should consider this type of approach to enable it to respond rapidly to changes in the group's finances.

5 Vacation, sick leave. For most medical groups accrual of vacation and sick leave are matters of personnel policy contained in the personnel policies of the group. From the medical group's perspective, therefore, no further obligations with respect to additional vacation or sick leave or their accrual are likely to be specified in an employment contract. With respect to professional meeting time, the contract should set forth the policy of the group so there is no misunderstanding or misinterpretation regarding how much time or reimbursement is available for the physician to attend professional meetings.

6 Fringe benefits. Most physician contracts should contain a provision about fringe benefits. From the perspective of the medical group, the provision should state that the physician can participate in employee benefits generally provided by the group, but that no special fringe benefits are provided for the physician. To the extent that the group has decided to provide other fringe benefits such as a car allowance or additional life insurance, those provisions should be specified in this fringe benefit provision. Without a provision covering these issues, the medical group runs the risk of a claim that certain other benefits were promised outside of the employment agreement and that the group has failed to meet its obligation to the physician.

7 Administrative and practice considerations. Another provision that should be included pertains to the relationship that a physician has with the business operations of the medical group. A variety of concepts should be included in this paragraph to strengthen the ability of the medical group to manage its affairs. First, this paragraph should establish that all fees, billings and collections are to be established by and remain the property of the medical group. Second, the agreement should specify that the group, and not the physician, has the full authority to administer the business of the group and to hire and fire all personnel. Third, the agreement should provide that all accounts and medical records are the property of the medical group and that the physician is

required to keep accurate records of all professional work that he or she performs or supervises. Finally, the contract should specify that the group provides all office space, equipment and other items necessary for the practice of the physician, but that the group alone has the authority to determine what is necessary and what is purchased.

8 Automobiles and insurance. Physician contracts should contain a provision pertaining to automobiles and automobile insurance. Many groups will require that their physicians maintain an automobile and also maintain appropriate liability and property damage insurance. Specific minimums with respect to coverage are also often specified. This provision is necessary, as physicians who travel on medical group business even in their own automobiles will be deemed to be doing so in the course of their employment for the group, which means that if an accident occurs, the medical group will be responsible for the physician's actions. Medical groups often have umbrella policies that cover excess liability for their employees who are driving automobiles, but these umbrella policies usually require individuals to maintain a baseline of coverage first.

9 Term. The term of a contract is one of the most important provisions of any employment agreement. Whether the contract specifies a short term or a long term (more than one year), the medical group and the physician must satisfy their respective obligations for that stated period of time. Generally, the longer the term of a contract, the more favorable it is for the physician. The rationale for this conclusion is that it is difficult for a medical group to specifically require a physician to work, if the physician does not want to perform. Physicians who desire to leave a situation are in most instances of little use to the medical group, and the medical group has little to be gained in seeking redress for the breach of the obligation to perform services. From the physician's perspective, however, longer employment agreements provide greater protection. If a medical group decides to terminate the services of a physician in the first year of a three-year agreement, the medical group will be obligated (unless it has cause to terminate the agreement) to continue to pay the physician for the full term of the agreement. While the physician has an obligation to seek new work to lessen the damages the medical group would be required to pay for the remainder of the contract term, this type of provision is quite favorable for the physician. For most medical groups, therefore, a much shorter contract term would be appropriate. In fact, a relatively short contract term (not more than one year) with liberal termination provisions (discussed below) would protect the medical group by permitting the release of a physician in an undesirable situation.

10 Termination. An equally critical provision in a physician's employment contract is how it may be terminated prior to the expiration of the term of the agreement. If, for example, a physician has an employment contract with a one-

year term, but the contract may be terminated on thirty days' notice without any reason, the contract is really a contract with a thirty-day term. An employment contract provision that allows a contract to be terminated by either party without any reason is called a provision for termination "without cause." The process of establishing "cause" for the termination of an agreement is often difficult and time-consuming. Thus it is generally in the medical group's interest for its employment contracts to contain a termination without cause provision along with a short notice period (thirty days).

A more difficult area is the circumstances under which the agreement may be terminated with cause. The phrase "with cause" means that the contract can be terminated if some reason exists that allows the non-breaching party to terminate the agreement. Definition of "cause" should be specified in the agreement. Cause provisions that specify the circumstances under which the medical group would be considered to have failed to live up to its contractual obligations are relatively straightforward. The interest of the physician is for the group to pay the salary and to provide the fringe benefits provided under the contract. Thus, "cause" in this context is often defined as the failure of the group to satisfy its obligations under the agreement.

The interest of the medical group, on the other hand, in defining cause is much more difficult to detail. The group is vitally interested in having the duties performed by the physician in a competent manner. To the extent that the physician is not performing the duties required under the agreement, the medical group has an interest in terminating the relationship. Definition of the circumstances under which the group would have the right to terminate the agreement again depends upon the respective bargaining positions of the parties. Typically, physician agreements often define cause as willful or repeated failure of the physician to comply with the reasonable directives of the board of directors, chronic absenteeism, willful misconduct resulting in damage to the group, or alcoholism or drug addiction. These types of reasons can be expanded or narrowed depending upon the circumstances.

11 Effect of termination. Upon the termination of the agreement, the parties must be able to determine their respective rights and obligations. To this end, medical groups

should consider including some version of the following concepts in their agreements:

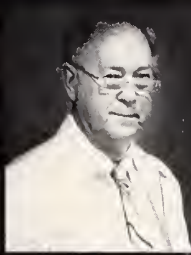
- a. All uncollected charges and accounts receivable should remain the sole property of the medical group, and the physician has no rights in any of these amounts.
- b. The physician should be responsible for the payment of any malpractice premium that may be necessary to provide extended coverage to the medical group for the actions of the physician.
- c. The compensation that will be owed to the physician.
- d. Any obligations of the physician to resell stock in the medical group upon his or her departure.
- e. The physician will be bound by the terms of any practice limitation provision that may apply to the physician.

12 Practice limitation agreement. Finally, medical groups should reconsider the need for a practice limitation agreement (or a revised provision) in their physician employment agreement. Medical groups should consider the financial implications of the departure of a physician from the group, and in particular the departure of a new physician whose practice has been built due to the reputation and patient workload of the medical group. Carefully drafted restrictive covenants that apply upon the departure of a physician are enforceable in North Carolina. Medical groups should at the very least re-examine issues of practice limitation as part of a comprehensive review of their employment relationships with their physicians.

In summary, medical groups should re-examine their employment contracts, making sure that the points raised in this article are considered in the review process. While every employment agreement utilized by a group will reflect the personality and philosophy of the group, most agreements could be strengthened from the perspective of the group to allow the organization to better confront the challenges it will face in the coming years. □

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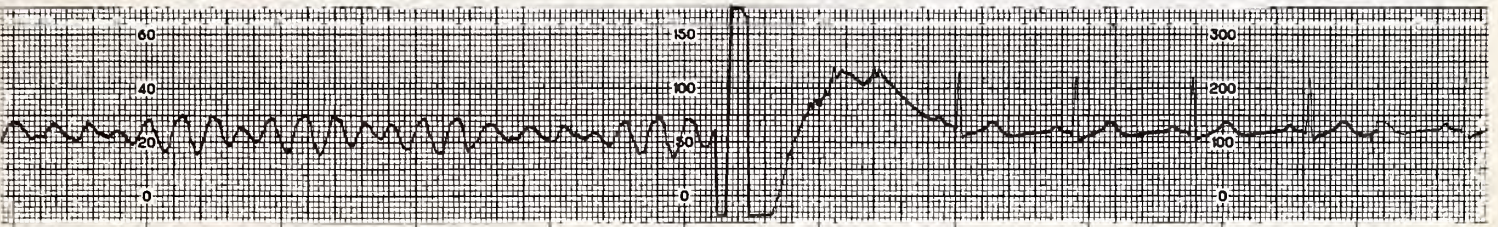
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Doctors, Patients, and Bills:

What Do You Do When the Patient Doesn't Pay?

Eugene W. Linfors, M.D., Forum Editor

Question for the Month:
How should doctors respond to patients who don't pay their bills? How about patients who keep, rather than send to the doctor, insurance payments for services they received from the doctor?

Julius A. Howell, M.D.
Plastic Surgeon from Winston-Salem

If a patient does not respond to a bill within two statement periods, a telephone call is made requesting payment and allowing the patient a chance for explanation. Each statement is sent once a month. Certainly if there is financial distress due to unemployment or another hardship such as illness, we try to work with the patient.

Monthly payments are acceptable as long as they are consistent. This is stressed when working out an arrangement with the patient. I think that it is important for the patient not to make an agreement for payment of large amounts that is impossible to maintain on a monthly basis. I try to stress the consistency of monthly payments and for the patient to work within his or her budget so this can be maintained.

Any patient who has made no attempt to pay his or her bill nor made any contact with the office staff, or who has repeatedly dodged telephone calls or letters should be notified in writing as to when the account will be considered for a collection agency. This date should be followed up and the account sent to collections if no payment is received.

As all physicians' offices know, it is quite easy to find out from the insurance company whether a payment was made to the patient or insured rather than to the physician. Normally, by letting the patient realize that the "mistake" is known by the physician/staff, the guarantor, feeling an amount of guilt at being caught, will usually turn the payment over to the doctor.

Conrad Fulkerson, M.D.
Durham County Psychiatrist

Though a little too threatening to tell my patients, a joke I heard sticks in my mind:

Q: What happens if you don't pay your exorcist?

A: You get repossessed!

With some exceptions, healers have had a reciprocal relationship with their patients that often included payment of some form of fee. Without completion of this reciprocity, treatment is incomplete. In my work this is important since appropriate distribution of responsibility is a common issue that people bring to psychiatrists. Though the "process" of the doctor-patient interaction is often missed in other specialties (in favor of more concrete "content"), mutual responsibility seems equally critical. Patients must value their medical care and, in this society, people pay for what they value and vice versa.

Patients must pay their fees or make specific, up-front arrangements otherwise. They need a feeling that they have done their part and "slack" in the health care system is disappearing.

Physicians contribute to unpaid fees by not addressing this personally, even if briefly, from the beginning. Doctors don't like discussing money with patients but we must do so. We have abdicated far too much to "third parties" and we would like to delegate ANY mention of fees to office staff. The patient's relationship is with the physician and it must be complete. We need to mention our basic fees, briefly advise how we bill and ask patients if they have questions. Insurance or not, the patient is ultimately responsible. We can then fairly and firmly pursue unpaid charges.

From 306 South Gregson St., Durham 27701.

P.A. Sellers, M.D.
Hendersonville Internist

Basically, the physician's relationship is with the patient, not with the insurance company. The patient is obligated to pay the physician a fair and equitable fee for the physician's services. This is a basic part of any professional service.

The amount and method of payment by the insurance company for the physician's service should be determined by the patient and the insurance company—not the physician. The physician should furnish all required billing information and may even submit the patient's claims. However, the physician should not assume the patient's responsibility of handling all of the patient's insurance business such as assuring proper payment for the patient.

If the patient receives the insurance payment, he or she indeed may not bring this to the physician. If this does happen and the patient does not assume the obligation of reasonable physician payment, the physician should consider legal action such as taking the claim to small claims court.

In this era of increasing depersonalization of medical care, partly perpetuated by third party payers' rules and regulations, it is increasingly important to cultivate the doctor-patient relationship. If that is maintained the patients will bring in their insurance checks.

James P. Weaver, M.D.
Durham Surgeon

A physician's response to non-payment for services should always be tempered by what many consider to be the principal rule of medical professional ethics: that a physician is concerned more for the welfare of the patient than for his or her own personal gain.^{1,2} The application of this medical ethic of service was unquestionably easier prior to the existence of third party payers, and consequently, the appropriate response of a physician to non-payment cannot be properly discussed without examining the position of each party involved in the current ambiguous trilateral relationship. Each party comes to this encounter with different concerns, and more often than not, lacking a formal contract between all three parties, the rules are at best equivocal. Scrutiny of the individual perspectives of each party should help clarify reasonable behavior and responsibilities in their interrelationship.

The patient's perspective. The patient's position may be viewed as that of the party who is in need of a service. Although medical care has been proclaimed a "right" by some in this society, we remain a capitalistic economy, and it is unrealistic to assume that most of our citizens believe anything is free. I will not deny, however, that medical care is special—special in the sense that everyone, regardless of their financial status, can get at least the basics of medical care if they need and pursue it. I am not aware of many other

products or services in our society which are as available. Paying for, or "inviting" a third party to help one afford beyond the basics of medical care is not an option all enjoy, but nevertheless, this added support undoubtedly opens additional doors in our current medical care system.

Regardless of the patient's ability to pay, the door of physician services should always be open. This is, again, the essence of medical professionalism, or what I call the "ethic of service." Once the patient contracts with a third party for "backing," however, the relationship with the physician changes.

Now, the patient tacitly represents himself as someone who is not in need of "free" services, even though the physician would donate them if necessary. Under these circumstances, the physician has every right to expect some compensation. Both parties are aware of this financial "backing," and whether the third party will provide compensation which the parties find acceptable is a detail that they can settle between them through negotiation. "Balance billing" is a business game that the patient should expect will be played based on his or her ability to pay, and always within the guidelines of the medical ethical ideal of service.

The physician's perspective. The physician should approach each patient with the medical ethic of service—more concern for the welfare of the patient than for his or her own personal gain. It is unrealistic, however, to assume that this service ethic should be the dominant pattern of medical practice, preventing physicians from earning a living or supporting their own business obligations. Earning a living and supporting their own business obligations are the forces which most commonly conflict with practicing the ethic of service. How much one "should" earn—which relates to how much one should charge—is indeterminable; it relates to market forces and personal goals.

The traditional approach of physicians has been to temper charges based on the individual's ability to pay, and questions such as, "What do you think it is worth?" or, "How much can you afford to pay?" were not infrequent. In dealing with the individual patient, the issues were clearer, and the solutions simpler. One could balance one's personal goals and business obligations against the patient's ability to pay.

Once the physician treats a patient who has insurance the understood contract is different. Both the patient and the doctor realize that there will be a payment generated from the insurance company because of the physician's service. The physician has every reason to expect payment from the patient of at least the amount of the insurance coverage. Balance billing can be worked out on an individual basis. Serious problems arise only when the patient keeps the insurance check, and does not pay the physician.

There is an element of implied trust in the physician-patient relationship. While the patient believes that the doctor will be honest, the physician believes that the patient will not lie either. Paying the physician with the insurance check is one expression of that presumed trust. The patient with insurance would not have received a check if the

physician had not performed a service, and obviously, the check that the patient receives is meant as payment for the physician's labor. Keeping this money is a serious breach of the trust that is so important in the physician-patient relationship. The resulting loss of confidence in that relationship, not only by the doctor, but by the patient as well, can end this beneficial association. The patient may be too embarrassed to go back for treatment, or the doctor may be so disillusioned with the patient that he or she will refer the patient to another physician for further treatment. Either way, the potential result is the destruction of a critical relationship. The patient with insurance has entered the relationship with the physician under the guise that payment will be forthcoming; keeping the check is a breach of that implied agreement.

I do not believe that physicians need to lose their professional ethic of service if they aggressively pursue payment under these circumstances. Collection agencies are one means. Depending on the circumstance, if the patient has brazenly lied about receiving payment from the insurance company, and without notification, continues to use the physician's services, the physician is justified in denying further treatment. With this measure, the physician is required to transfer the patient's care to another physician.

Refusing to treat a patient is a serious step, but I do not believe our ethic of service requires physicians to be abused. It is not unethical to demand integrity from our patients, and our ignoring their financial responsibility to us is just another form of physician paternalism. Society has asked us to accept patient autonomy, and demanding honesty and fiscal accountability from our patients will help accomplish this goal.

The third parties' perspective. Third parties enter into the physician-patient relationship usually at the request of the patient. Although the physician may "ask" for this entrance when he or she signs an HMO contract, the question asked applies to indemnity type insurance, or non-assigned Medicare claims.

The insurance company sells insurance to the patient with a written contract outlining the basics of the coverage. These policies are sold under the guise of giving the patient greater access to the medical care system, and paying most of the expenses incurred through encounters with hospitals, physicians, and other providers. There is an implied agreement to "pay the bills."

Third parties constantly attempt to hold down the costs of doing business, and it is these efforts that can cause conflict in the physician-patient relationship. In terms of physician reimbursement, one of these policies deserves particular attention.

Both Blue Cross and Medicare have adopted a tactic of sending the check to the patient if the physician does not accept the conditions of the insurance company. With Medicare, the physician must accept "assignment," and with Blue Cross, the physician must sign an agreement which not only can limit his or her charges—as with Medicare—but can affect his or her ability to manage the details of patient care such as consultation, admission to the hospital, and

ordering of tests and procedures.

Unfortunately, this scheme creates the potential for interpersonal conflict between physicians and patients. A doctor's patients are all ill. Many, because of their illness, are unemployed; they are suffering both physically and emotionally. In addition, some of them may be poor, and receiving a check, which might be sizable, must seem like a windfall. Under these circumstances, the temptation to keep the money might be too great and, unfortunately, it sometimes is. Because physicians and patients are often abruptly thrown together by circumstance, and must attempt to develop an amicable working relationship in situations permeated with multiple stresses, this policy only adds an additional strain which can separate the physician from the patient. Medicare and Blue Cross are promising to pay for the patient's medical care, while they simultaneously use the patient, in a cost containment scheme, as an instrument of persuasion against their own caregivers. I do not believe this manipulative conduct, with its coercive aspects and destructive potential, is morally defensible. It should be stopped.

Strange bedfellows. The obligatory triangle imposed by the physician-patient-third party relationship is indeed complex. If viewed, however, from the same perspective as any association, the basic qualities of fairness, honesty, and integrity emerge as simple guideposts for interaction. Even given their different perspectives, if all parties—physicians, patients, and insurers—will adhere to these principles, these strange bedfellows can surely have a restful night.

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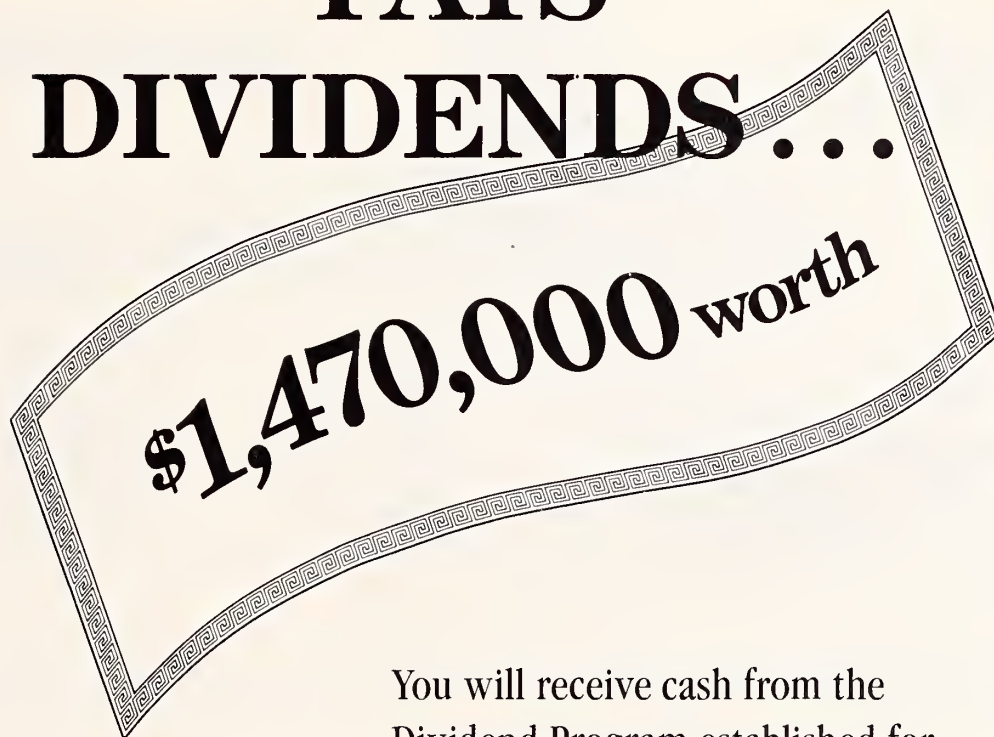
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Forum Editor's Note:

There are obviously many sides to this question. I don't think I ever addressed the issue of how to talk to patients about fees and insurance while I was in medical school. It now seems too important a part of the business of medicine to have ignored while in training. I am impressed that some, at least, have thought through the problem.

What about those patients who *can't* pay their bills? Who is responsible for them? □

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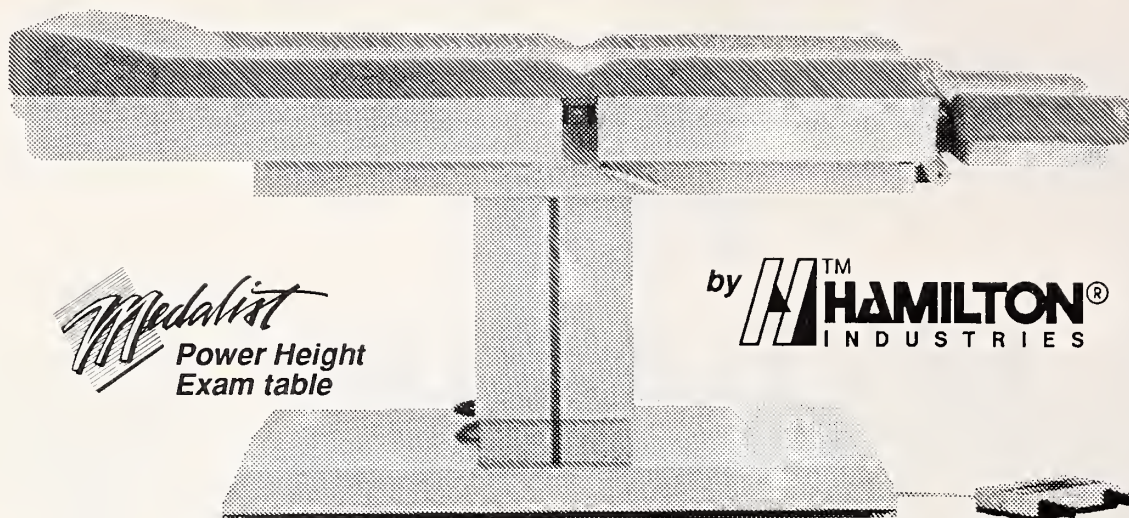
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More Government "Guidance": The Resource Based Relative Value Scale

James P. Weaver, M.D.

American medicine has more changes to look forward to now that the federal government is trying to eliminate the "inequities" in physician reimbursement. The potential solution to this "problem" has been offered by Dr. Hsiao in his recently published "Resource Based Relative Value Scale."¹ Not without controversy, the basic wisdom of these academic pronouncements has been perceived and quickly endorsed by many of medicine's most prestigious groups. The American Academy of Family Physicians (AAFP), the American Geriatrics Society, the American Association of Internal Medicine, the American Rheumatism Association, and the American Society of Internal Medicine have all joined the chorus of boosters crying, "Equity in physician reimbursement!" Because the study raises the reimbursement for their special medical skills these "cognitivists" are elated. They would like to institute these concepts as soon as possible to speedily eliminate the perceived previous injustices.

As with any revolutionary movement, there are some dissenters. The dissenters, mainly "proceduralists," are shouting "foul!" Their medical skills are devalued by this study, and led by the American College of Surgeons their cry is, "Reject this proposal!"

And to whom should American Medicine look for direction in its process of deciding to accept or reject this proposal? Clearly, the physicians themselves are divided, their self interests have dictated their stand. There is only one objective source of information upon which to base this choice: history. Careful examination of prior government regulation will show how the guidance of our legislators has affected, and will affect, the uncertain future of Medicine.

I think...

Let's take DRGs for example. This payment scheme was instituted to decrease government payments to hospitals. Because this government guidance has allocated inadequate hospital reimbursement for services, rural hospitals in

this country continue to close at a rapid rate. Consequently, access to medical care for many communities has been eliminated.

I think they're trying...

Or how about "intensity of service" and "severity of illness" criteria. Don't they guide physicians' decisions of when to admit and when not to admit a patient? Now, we can look up the government criteria in the large red book the hospital keeps in the emergency room, and if the patient fits the numbers, we are allowed to admit him. Doctors need guidelines, and it makes them feel so Professional to read the big government books; guidelines have eliminated many of those "sticky" decisions. Now doctors don't have to think quite as much. They have more time to write notes in the charts explaining, for the Medicare reviewers, everything they are doing. And why explain anything? So the hospital will get paid. Now that's guidance!

I think they're trying to cut...

And then there's imprisonment and fines. Punishment is now a reality in the practice of medicine. It's not just malpractice anymore, but the threat of fines and imprisonment. Fines and prison will, again, guide physicians to pay proper attention to face sheets and other details on the charts. If they don't pay attention, they face fines and prison. Ah, more government guidance.

Paybacks? Yes, legislators gave us these too. If physicians do something that the government retrospectively believes was "not indicated" any monies paid must be refunded. But it's not as bad as one might imagine, for, because of the many "freezes" on physicians' charges, physicians' "refunds" have frozen at 1982 levels.

I think they're trying to cut costs...

Teamwork, that's what Medicine needed, and the government gave us more guidance: we can "participate" or not. More of us are "participating"; physicians have gotten the message. The "assignment rate for physicians' services (on a dollar basis) was 78.5%"² during the second quarter of 1988, as reported by Dr. Roper, Chairman of the Health Care Financing Administration.

From Durham Clinic, P.A., P.O. Box 15249, Durham 27704.

And if physicians have gotten the message, what was the message? Was it the payment differential between "participating" and "non-participating" physicians? Was it the required financial disclosure statements with procedures over \$500, or the required disclosure of "participation" status of a potential referral doctor, or just the mandatory "participation" imposed by some of our progressive states that "guided" doctors to become part of the team? No matter, it's "helping" us join the team, and we needed some guidance, didn't we?

Reimbursement, oh yes, reimbursement, that's the current focus of government guidance. Because of the extensive experience of our legislators in this domain, Medicine has much to look forward to, indeed:

- 1969 Prevailing charge lowered from 90th to 83rd percentile of customary charges.
- 1970 Lowered again to 75th percentile.
- 1971 Physician's customary charges based on median charge during the 1969 calendar year.
- 1971 Wage and price controls imposed on physicians for 34 months, other sectors controlled for only 17 months.
- 1972 "Economic index" used to limit annual increase in prevailing charges.
- 1976 "Economic index" used to set prevailing charge limits using 1973 charge screens based on charges during 1971.
- 1984 Deficit Reduction Act created "participating" and "non-participating" categories. In combination with the Emergency Extension Act of September 30, 1985, effectively froze fees through March 15, 1986. (Actually prohibited the October 1, 1985 scheduled fee profile increases for "participating physicians.")
- 1985 Consolidated Omnibus Budget Reconciliation Act extended freeze for non-participating physicians through December 31, 1986.
- 1986 Omnibus Budget Reconciliation Act of 1986 (OBRA) introduced the maximum allowable actual charge (MAAC) which if exceeded sets sanctions. Other "incentives" added to "encourage" participation.

I think they're trying to cut costs...

Not without effect, this government guidance helped limit the growth of physicians' real net income from 1975 through 1985 to zero.³ Given the current federal budget deficit it appears that pressure will build to continue cutting physician reimbursement.

I know they're going to cut costs...

If physicians want more of the same, they should put their support behind this latest government effort to solve the "problems" with our profession. The government's ideas are clearly intended to benefit American Medicine, by encouraging the delivery of medical care, strengthening Medicine as a profession, and dare I say it, improving the lot of physicians.

Unless the government reverses its "promise" to provide medical care to the elderly, with the increasing elderly

population, and growing demands for services, there is no alternative but to cap balance billing, hold physician payment to a minimum, and continue to strengthen the bonds of physicians' indenture.

As the politicians attempt to reconcile election day promises with the fiscal realities of medical care delivery, they never disclose the fact that to fulfill those promises, the regulation will continue. It is apparent that the regulation is consistently guiding medical care from second-to-none, to second-rate, and physicians from a profession that cares, to who cares about a profession.

They will cut costs...

So go ahead, American Society of Internal Medicine, and American College of Physicians, and American Academy of Family Physicians, and whoever you are; place your trust in the leadership of your government, calling upon it to solve the "inequities" in physician reimbursement and to guide American Medicine toward a fair solution of this "problem." I would only suggest, however, that you not forget the lessons of history, lest you realize in 1998 that the five-dollar raise you received for that office visit was frozen at 1988 levels for the last ten years. And, as you enthusiastically go for the bait and invite this relative value Trojan horse, with all of its divisive potential, into the temple of Medicine, remember that political "guidance" is not about to solve any problems in medicine. Remember that what the politicians are really about, regardless of what you think they're promising you, is their need to CUT COSTS...

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STOP LESIONS FROM SURFACING

An alarming rise in the incidence of genital herpes points to the need for better disease treatment. Fortunately, long-term maintenance therapy with ZOVIRAX® can help keep herpes patients lesion-free. In controlled studies of 4 to 6 months' duration, recurrences were totally prevented in up to 75% of patients. And during two years of clinical use, daily therapy has been shown to be generally well tolerated.¹ One capsule TID...the best way to stop lesions from surfacing.

Reference: 1. Data on file, Burroughs Wellcome Co.

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Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk consideration in specific disease categories:

First Episodes (primary and nonprimary infections—commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS—Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established (see CLINICAL PHARMACOLOGY—Microbiology).

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility:

Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parental doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficacy but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F₁ generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recov-

ery of sperm production was evident 30 days post-dose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day i.v. for one month.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rabbit (50 mg/kg/day, s.c. and i.v.) or in standard tests in the rat (50 mg/kg/day, s.c.). In a non-standard test in rats, fetal abnormalities, such as head and tail anomalies, were observed following subcutaneous administration of acyclovir at very high doses associated with toxicity to the maternal rat. The clinical relevance of these findings is uncertain. There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in standard animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS—Short-Term

Administration: The most frequent adverse reactions reported during clinical trials of treatment with Zovirax Capsules were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments with Zovirax Capsules (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), paronychia (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent

disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment:

One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73 m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"—Bottles of 100 (NDC-0081-0991-55), and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light and moisture.

U.S. Patent No. 4199574

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.



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Health Watch

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Vision

CATARACT SURGERY FIRSTHAND

Marion L. Eakes

I doubt if anyone anywhere has ever had a more successful cataract surgery experience than this writer.

For the first forty-two years of my life I had superb eyesight; then my arms started getting too short! My eye needs were being taken care of by an eye clinic then, but somehow I felt like I was just a number on an assembly line. So I switched to the doctors who had taken care of my father's eyes, his glaucoma, and later his cataract surgery more than forty-five years earlier. My first direct contact there was with a nurse. I asked her which doctor was her eye doctor and why she selected him. She suggested that I make an appointment with the doctor who is now my ophthalmologist, and I've been going to him ever since.

Cataracts Ran in My Family

Several years after I began going to him my doctor informed me that I had cataracts forming. This did not

surprise me since both of my parents had developed cataracts in their eyes. In the beginning he said to me, "Let's put off the surgery as long as we can because there will always be improvements and more know-how." So we did.

Over the next several years each time I saw him he would say, "Well, the cataracts are thickening, but it's amazing how well you can see. Come back in six months and we'll take another look." The next time he would examine me again very carefully and have me read the chart, and he'd say, "I just can't believe that you can see as well as you can." This probably went on for three or four years.

I Couldn't See the Ball

For many years I have enjoyed playing golf. On a favorite course there is a par three, 200-yard hole. If I was fortunate enough to hit the green I had always been able to easily see the ball. One day after I teed off my partner said that I had hit a great shot. I asked him, "Where is the ball?" And he said, "Three or four feet from the pin." That was extremely shocking to me, and I knew I was getting into serious trouble, because I could not see the ball at all.

Mr. Eakes resides at 2618 West Vandalia Road, Greensboro 27409.

Along about this time I think my ophthalmologist may have gotten the feeling that I was pressuring him to go ahead and do my cataract surgery, so he immediately brought in another doctor for his opinion. Their verdict was that I still had some time to go before surgery would be necessary.

My Stars Didn't Seem Very Bright

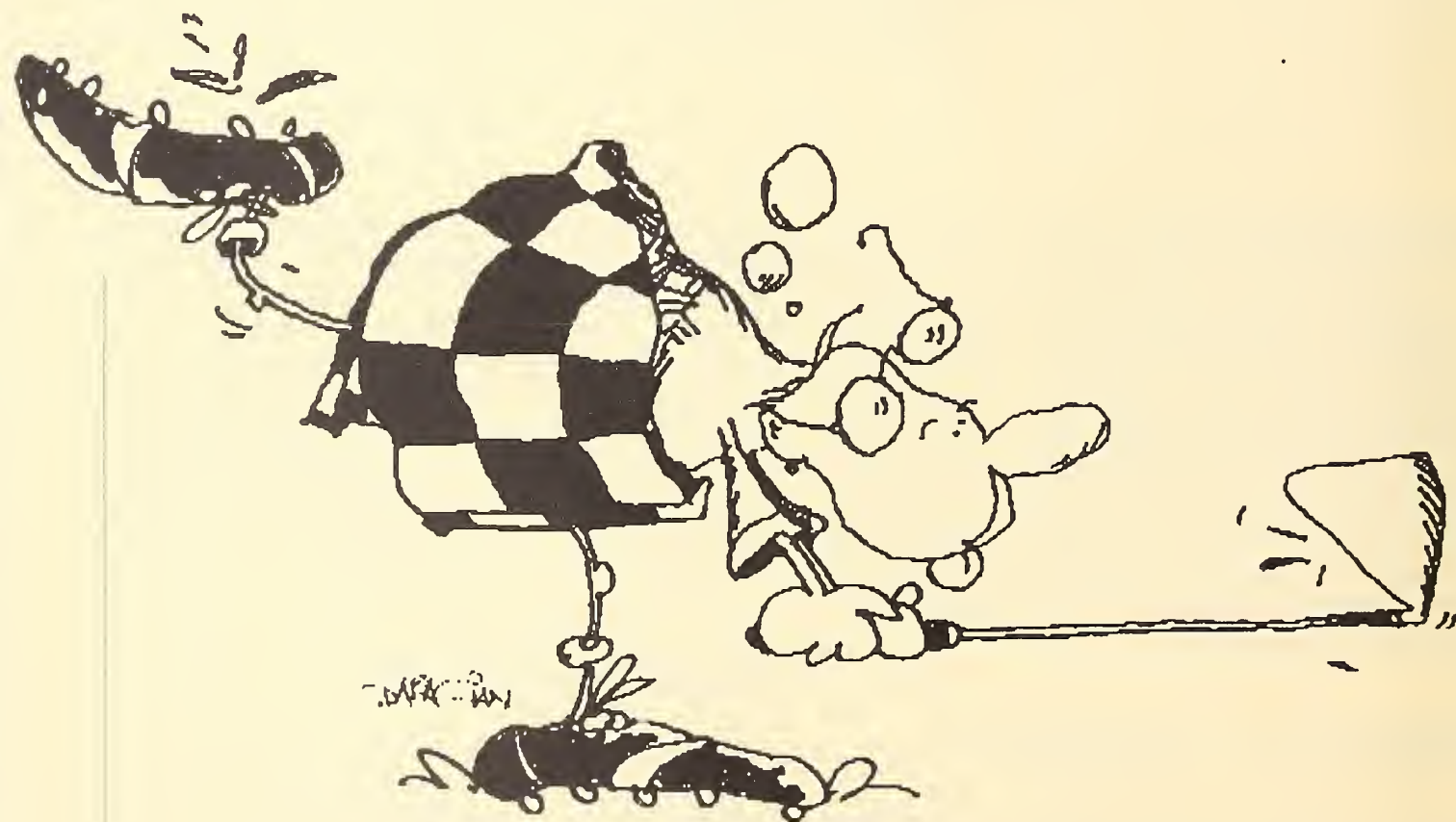
I have always enjoyed looking into the night sky at the stars, particularly in the Florida Keys where I've been going for almost thirty years. But my stars didn't seem very bright and crisp anymore. At night the street lights had rings around them; then the automobile lights also had them.

Soon after I began noticing the halos, my ophthalmologist said that when I was ready he would operate on one of my eyes. Prior to this he had measured me for implant lenses, and one of his associates had also done this. According to my count, hospital personnel measured my eyes five times for these marvelous implant lenses.

Removing My Cataract

On the morning of my surgery, I was at the hospital — checked in — at 7 a.m. and went through some preliminary preparation. As I recall, I was taken into the operating room at about 8:30. They must have given me something so that I wouldn't be aware of what was going on because I have no recollection of the amount of time that was involved in the operation. I remember that I was given an injection to numb my eye. I remember seeing my doctor after I was on the operating table and under the bright light. I remember specifically the microscope and the activity going on around me.

I think it was maybe 9:30 before I got back to my room. I remember that I was very hungry because I wasn't allowed to have breakfast or any fluids before the operation. I was in my room and had had lunch when my doctor came by and informed me that the surgery had gone very well. I think I had to wear a patch for about three days, but on that very first night I just had to have a peek. Amazingly, I could see beautifully. Those distressing circles around the light were gone forever from that eye.



My First Postoperative Exam

I eagerly anticipated my first postoperative exam although I already knew everything was great! The doctor examined that eye with great care, and I could sense that he was also very pleased. That first followup visit was the day after the surgery and then there was another in three or four more days and then another about two weeks after the surgery. He always said, "Look, call me if you have any problems." He saw me maybe four times during the first six weeks and as many as five times in the first six months. After the surgery it really takes some months for the eyeball to come back to the right shape so there were constant changes of glasses until the healing was done.

My first cataract operation was in August 1987 and my second on December 23, 1987. (My wife still gives me a hard time for choosing this date, but it was a good time for me to recover.) My second operation was also a marvelous success, although I did run into a little trouble. From my war experience I had developed a terrible case of claustrophobia. It took me quite a few years to realize that claustrophobia is really hyperventilating. I had explained this problem to the doctor, and then I did have trouble with it just before the second cataract operation. The nurse who was administering the anesthesia — I've never met her but I'll always be appreciative — she held my hand and calmed me down.

I Could Quit Wearing Glasses

In June of 1988, my doctor said I could quit wearing my glasses if I wanted to. I could see well enough without them. I have many friends my age and not a single one that I know of does not have to wear glasses. I was fortunate to have a surgeon who was determined to restore my eyesight to the equivalency of forty years ago.

I'm going to see my ophthalmologist shortly and I'll probably ask him for prescription glasses for when I'm doing extensive reading. With newspapers or magazines I have no difficulty, but if I'm going to sit and read awhile, I'll have glasses for that.

Recently my regular physician was giving me a physical exam and I told him about my cataract surgery. He looked both eyes over very carefully and remarked that he could barely see where the incisions were made.

When I see my ophthalmologist for my next visit, I am going to have to tell him about one small complaint. Recently when my wife and I were in the Florida Keys, we would go walking at night and we'd stop and look up at the stars. There the air is so clear that it's almost like you could reach up and touch them. One star up there was one million lightyears away. And would you believe—the tip of one point of that star looked slightly blurred!!



WHILE MR. EAKES SLEPT

We thought you would like to know what Mr. Eakes's ophthalmologist was doing while Mr. Eakes slept during his cataract surgery, so we asked him. Here is his recollection:

Mr. Eakes was wheeled into the operating room and helped onto the table. We hooked him up to a heart monitor, a blood pressure cuff and an oxygen saturation monitor. Then we placed a catheter in his nose so that he could breathe easily while he was under the drapes during his surgery.

The anesthesiologist gave Mr. Eakes a short-acting barbiturate. When it acts in combination with medication a patient receives before coming to the operating room it usually causes some amnesia. Mr. Eakes was literally asleep for the next three or four minutes while I gave him the local anesthesia by needle; I used a mixture of long-acting and short-acting anesthetics. After that I placed a small pressure device on his eye for eight to ten minutes to soften his globe for the surgery.

Next we prepped and draped him, using antiseptic solutions and sterile towels and sticky drape. I used a lid speculum to separate his eyelids and put in two traction sutures to stabilize his globe. Then I made an incision through the outer coats of his eye and another incision to the inside of the eye.

I used a bent-needle knife to take the face off the lens capsule. Then I opened the incision further, removed the nuclear portion of the lens and used a suction device to

remove the cortex from the lens capsule. At that point Mr. Eakes was without a lens in that eye.

I next cleaned the lens capsule, grasped the premeasured intraocular lens that would replace the lens I had just removed from Mr. Eakes's eye, inspected it and placed it within the capsular bag.

During his first cataract surgery I patted Mr. Eakes on the shoulder at this point and reassured him that I was nearly done. During his second surgery he was more deeply asleep and I didn't disturb him. Some years earlier he had told me about his World War II experience as a gunner on a bomber, which had left him with claustrophobia on occasion. He showed some distress while we were draping him before his second operation, and so we gave him a little more medication to help him sleep more soundly through the surgery.

Once the intraocular lens had replaced Mr. Eakes's own lens, I snugly sutured the wound, removed the traction sutures, lids speculum and drapes, and accompanied Mr. Eakes from the operating room to his room. There I talked with Mrs. Eakes for a few minutes.

Mr. Eakes tolerated the cataract procedure very well both times. □

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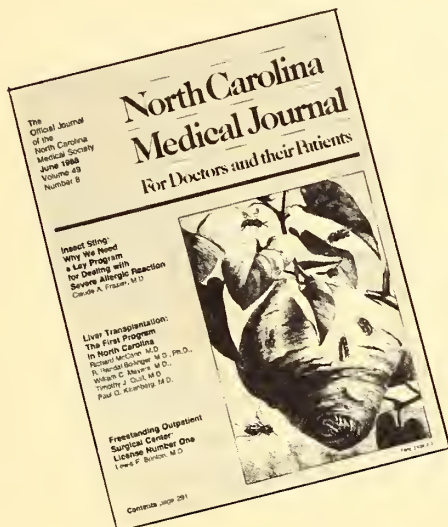
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How Much Sun Is Enough?

Sunburns and Sun Poisoning

Even before the summer sun heats up, people are out sunbathing, trying to add a little "healthy color" to their skin. Unfortunately, the sun's rays are not harmless, as most of us eventually find out. Chronic exposure to sunlight can cause wrinkled, leathery-appearing skin and skin cancer. A single over-exposure can cause a sunburn or "sun poisoning."

Sunburn

If you are not careful in the sun, you will be rewarded with a sunburn. Sunburns are usually caused by too much UVB light (see figure 1). Since UVB rays do not penetrate the skin very deeply and are absorbed almost entirely by the top layer of your skin (the epidermis), this type of skin injury is very superficial.

Generally, your skin becomes pink and painful by the time the sun goes down. Swelling of your skin may occur with superficial blister formation. Sunburns usually reach their peak within 24 to 48 hours and then clear up with peeling and tanning of the skin. If you look at your sunburned skin under a microscope, "sunburn cells" are invariably present. These dead skin cells look like little red basketballs scattered throughout the upper layers of your epidermis.

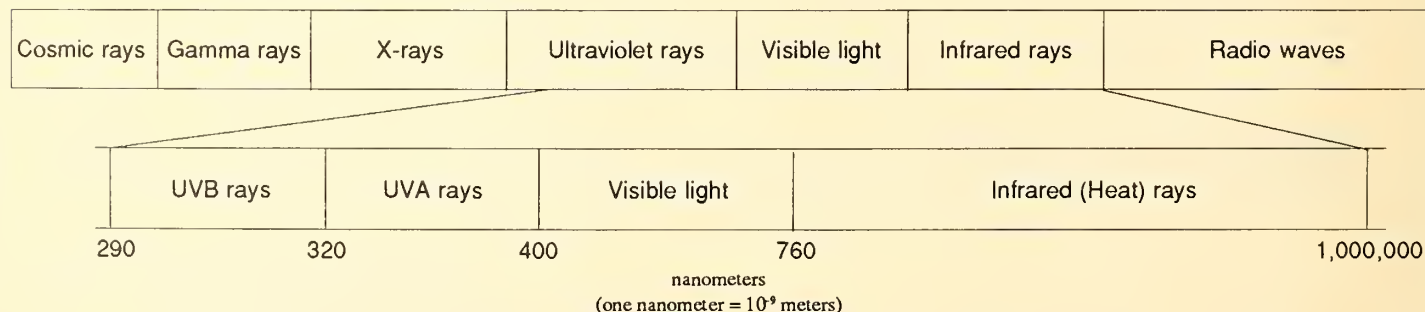
If you get a sunburn, try to apply cool compresses to your skin as soon as possible. If there is a shaded pool or bath

nearby, soak in cool water for twenty to thirty minutes and repeat this again several times a day. Aspirin or ibuprofen (Advil, Medipren, Nuprin) may also help relieve soreness and inflammation. Over-the-counter sprays containing benzocaine (Solarcaine) may also help relieve your painful symptoms, but be careful—some people are allergic to "caines." Antihistamines by mouth such as diphenhydramine (Benadryl) may block some of the chemicals that cause inflammation in your skin. If you are miserable, see a doctor. He or she may give you a shot of cortisone or cortisone pills by mouth along with a potent topical cortisone cream and a prescription pain medicine. Relax, drink plenty of liquids (but not alcohol), and vow to use sunscreens in the future.

Sun Poisoning

Most people who get "poisoned" by the sun have a sunburn. The other most common cause of sun rashes is polymorphous light eruption (PMLE), which affects up to 10% of the population. Polymorphous light eruption often develops quite suddenly in people who have previously tolerated sunlight exposure, and may run in some families, especially those of American Indian extraction. Red swollen areas, blisters, bumps, itchy scaly patches, or simply stinging and burning sensations may occur within a few hours to several

Figure 1. The Electromagnetic Spectrum



Sunlight is composed of various wavelengths which have different effects on your skin. Visible rays make up about 40% to 50% of the sun's rays, while heat (infrared) rays account for most of the rest. Approximately 1% to 2% of sunlight is composed of UVB rays and UVA rays. Depending upon the season, time of day, and atmospheric conditions, the mixture of these waves can vary tremendously. For example, we now know that there can be hundreds of times more UVA rays than UVB rays in morning and afternoon sunlight, which is the reason you are less likely to get a sunburn early in the morning and late in the afternoon. Clouds have also been shown to block UVB rays better than UVA rays. Since approximately 80% of the sun's rays penetrate cloud cover, however, you can get a severe sunburn even on a cloudy day.

From Asheboro Dermatology Clinic, P.A., 407 South Cox St., Asheboro 27203. Dr. Hendricks is a Clinical Associate Professor in the Department of Dermatology, Bowman Gray School of Medicine, Winston-Salem 27103.

days after exposure to the sun. The skin usually is more sensitive to UVB rays, although UVA or visible rays, or a combination of different rays, may cause the skin rash. Fortunately, the amount of sun exposure required to trigger the rash is usually quite high, and the tendency to break out from sunlight often improves as the person gets a tan. Under the microscope there is generally inflammation around the blood vessels in the skin, but the findings may vary depending upon the type of rash.

Over-the-counter antihistamines and topical cortisone creams may help relieve your symptoms, while sunscreens with a sun protective factor of 15 or greater will help prevent recurrences. If you are having a lot of problems, see a doctor.

Other Causes of Sun Poisoning

We now realize that soaps, creams and lotions as well as over-the-counter and prescription medications can cause your skin to be abnormally sensitive to the sun (see table 1). Some people even break out from their sunscreens after sun exposure. With the proliferation of suntanning booths and parlors, "sun poisoning" is becoming a significant problem. These sunburn-like rashes may be caused by a medication-induced allergic reaction to light (a photoallergic reaction) or by a high enough level of the medication in your skin to cause it to react to light (a phototoxic reaction). Please remember—any medication may cause someone somewhere at sometime to become sensitive to one or more of the rays in sunlight. In addition to medications, disorders of metabolism such as

porphyria cutanea tarda and pellagra (niacin-tryptophan deficiency) can also make you abnormally sensitive to light.

Porphyria cutanea tarda is seen most often in alcoholics or in patients taking estrogens, iron, or certain other medications. These patients have an abnormality in the metabolism of their red blood cells which makes them accumulate photosensitizing chemicals in their blood. These chemicals (called "porphyrins") cause them to be sensitive to UVA rays.

Pellagra, on the other hand, is caused by a deficiency of niacin (Vitamin B₃), an essential vitamin, and tryptophan, an essential amino acid. Pellagra used to be widespread in the South. It was one of the leading causes of death in North Carolina at the turn of the century. Today pellagra is only seen in chronic alcoholics, food faddists, and patients with gastrointestinal disorders or cancer associated with malabsorption or abnormal utilization by the body of vitamins and amino acids. If you fit into one of these groups, beware of the sun.

Finally, a condition known as systemic lupus erythematosus may be promoted and exacerbated by sunlight. The cause of this abnormal photosensitivity is not known, but sun exposure may cause serious problems for a person with this disease.

The Future

The more we learn about the biological effects of sunlight, the more cause we have for concern. Heat (infrared) rays are

just now beginning to be studied, and there appears to be some correlation between chronic exposure to heat and the induction of skin cancer. Heat and UVA rays also increase the skin damage caused by UVB rays, while UVA rays penetrate the skin deeper than UVB rays and affect the immune system. Some people are even "allergic" to visible light.

So, while scientists in their laboratories work this all out, I would suggest staying in the shade and using a sunscreen. Relax and enjoy your smooth undamaged skin. □

Table 1
Some Common Photosensitizing Drugs and Chemicals

aminobenzoates	in sunscreens
amiodarone	Cordarone
coal tars, wood tars, and petroleum products	Estar, Fototar, LCD (liquor carbonis detergens), psori-Gel
furocoumarins	in cosmetics, limes, celery, parsley, etc.,
psoralens	Oxsoalene Ultra, Trisoralene
griseofulvin	Fulvicin, Grifulvin, Grisactin, Gris-PEG,
halogenated salicylanilides, carbanilides, and phenols	antibacterial agents used in deodorant soaps, antiseptics, and cosmetics
methylcoumarin	in cosmetics
musk ambrette	in cosmetics
nalidixic acid	NegGram
PABA esters	in sunscreens
phenothiazines	Phenergan, Prolixin, Thorazine, Trilafon
piroxicam	Feldene
quinidine	Quinaglute
quinine	
sulfonamides	Bactrim, Gantanol, Gantrisin, Pediazole, Septra
sulfonyleureas	DiaBeta, Diabinese, Glucotrol, Micronase, Orinase
tetracyclines	Achromycin V, Minocin, Sumycin [especially demeclocycline (Declomycin)]
thiazides	
chlorthiazide	Diupres, Diuril
hydrochlorthiazide	Aldactazide, Aldoril, Dyazide, Esidrix, HydroDIURIL, Ser-Ap-Es



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Family Medicine in a Private Academic Medical Center

George R. Parkerson, Jr., M.D., M.P.H.

The issue of how family medicine fits into the academic medical center is being addressed on a national basis. There is wide variation by school and by geographic location. Even so, many of the problems involved have been faced by those of us on the Duke faculty. This paper is an account of my personal perceptions of the past, present and future of academic family medicine based upon my 15 years experience in this one private academic medical center, following 18 years of family practice in the small town of Winder, Georgia.

One of the major difficulties involved with the entry of family medicine into academia relates to traditional and functional differences between academic and community physicians and the medical disciplines they represent. It is only natural that the more advanced scientifically that medicine becomes, the more subspecialized its physicians become. A logical component of this is the clustering of subspecialists, especially those with research interests, into the academic medical center. There they can concentrate upon the more exotic and severe types of illness on the frontiers of medical knowledge and technology, while the responsibility for day-to-day care of patients with all types of health problems remains the domain of the community physician.

The town-gown distinction was very clear-cut in the old days of general practice. When I was graduated from Duke University Medical School 36 years ago, my decision to enter general practice was relatively simple: I felt that the principal way to fulfill my life mission of helping other people was to treat sick people. Furthermore, I liked all aspects of clinical medicine and patients of all ages and both

genders. I had the mindset of a generalist. At that time, this career choice did not include an academic option, because there were no general practitioners on the medical school faculty.

In 1969, with the establishment of the American Board of Family Practice, general practice became family practice. This turned out to be much more than just a name change. Rather suddenly, family physicians realized that they no longer could relegate the entire responsibility for teaching and research to other disciplines, as in the past. If the new specialty were to achieve the quality of the older traditional specialties, attract the best medical students, and address the research issues of particular importance to its own patients and clinicians, it would have to become a part of the academic medical center.

During the past 20 years the academic component of family medicine has developed nationwide. At present, 115 of the 138 U.S. medical schools and branches (83%) have either departments or divisions of family medicine. State-supported institutions are more likely to have family medicine components (94%) than those that are privately supported (63%).¹ Duke is one of the private academic medical centers that has a family medicine department. It should be noted, however, that although Duke is not a state school, it does receive a sizable amount of funding from the State of North Carolina as capitation for medical students who are state residents and as payment for outreach educational activities performed by Duke personnel in North Carolina Area Health Education Centers (AHEC).

At Duke, family medicine is combined with other disciplines and programs into the Department of Community and Family Medicine. In addition to family medicine, the department is responsible for occupational medicine, student and employee health, a diet and fitness program, biometry and medical informatics, epidemiology, and the training of physician assistants. This combination, although diverse, does work well because of certain common areas of interest, such as health promotion and primary medical care.

Historically, Duke has demonstrated a strong commitment to family medicine. In the Indenture which established

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the Duke Endowment in 1924, James B. Duke provided support for an institution that would "administer to the social welfare" of people in North and South Carolina "by way of ministering to the comfort of the sick."² He considered rural districts as areas of special need. Dean Wilbur C. Davison, the first dean of Duke University Medical School, stated, "In keeping with his purpose, the curriculum was designed to encourage family practice in rural communities."³

The Evolution of Family Medicine Training

It has been my privilege to observe and to participate in the evolution of family medicine at Duke. When I was a medical student, Dean Davison gave curriculum credit on pediatrics for students to spend two to three weeks with one of several prominent general practitioners in North Carolina. The three weeks I spent with Amos Johnson in the small town of Garland was a memorable educational experience.

In 1961 the Duke Endowment established a preceptorship program to fund medical students for eight-week extra-curricular family practice experiences during their summers. For the 20-year period from 1961 to 1981, this program provided important support for family medicine education at Duke and the other medical schools of North and South Carolina.

When the Department of Community Health Sciences was established at Duke in 1966 under the leadership of E. Harvey Estes, Jr., M.D., elective courses relevant to family medicine were instituted in the curriculum. When Dr. Estes invited me to join the Duke Faculty in 1974, there was only one hour in the core curriculum devoted to family medicine. In 1979, the name of the department was changed to Community and Family Medicine. That same year family medicine was given 13 hours in the required curriculum for all Duke students, and in 1981 this was expanded to become a full eight-week clinical clerkship equal to that of the other clinical disciplines. In 1986, half of this became optional, but the all-important four-week community preceptorship component is still required of all Duke students. During this time clinical experience is acquired in the office of one of 58 practicing family physicians in 35 community sites, mostly within North Carolina.

This clinical experience adds an important dimension to the education of medical students that is not provided by the traditional clerkships of medicine, surgery, pediatrics, psychiatry, and obstetrics-gynecology. On family medicine they see patients of all ages and both genders, mostly in the office ambulatory setting. Data collected while the course length was still eight weeks for all students showed that each student saw an average of 184 different patients in 236 encounters for 416 problems, whereas on the traditional clerkships, which included mostly hospital inpatients, each student treated an average of 36 patients in 142 encounters for 300 problems.⁴ The traditional medical disciplines often emphasize the unusual types of illness, whereas family medicine teaches

about commonplace problems. Evaluation of student experience at Duke reveals that half of all students who had already completed required courses in the other clinical disciplines learned the management of common problems, such as hypertension and osteoarthritis, only later during their clerkship in family medicine.⁵

Training of residents, fellows, and faculty is also an important responsibility of academic family medicine. Nationwide, there are 382 family medicine residency programs (6% of all programs), with a total of 7,322 residents in training (9% of all residents).⁶ Two of these residencies are associated with Duke. The Duke-Watts Program was established in 1972, and the Duke-Fayetteville Area Health Education Center (FAHEC) Program, in 1977. Fellowship and faculty development programs were begun in 1979.

During its 16 years through 1988, the Duke-Watts Family Medicine Residency has graduated 157 family physicians from its three-year program. At the present time there are 33 residents in training. Graduates from many U.S. medical schools have been attracted to Duke for this residency, the quality of which has attained a high level of state and national recognition. Many of the residents who came to North Carolina from other states have remained here to practice and to teach. While only 10% have been native North Carolinians, 37% have remained in the state. Of the residency graduates, 77% are in full-time practice and 15% are full-time academic faculty members. Others are in transitional activities such as fellowship training.

An additional 41 family physicians have been trained by the Duke-FAHEC Program through 1988. Eighteen residents are in the program currently. Like the Duke-Watts graduates, many Duke-FAHEC trainees from other states have stayed in North Carolina (26% North Carolinians, and 49% remaining in the state). Eighty-six percent of the graduates are in full-time practice.

The residency curriculum includes selective training in the traditional disciplines, as well as geriatrics, behavioral science, pharmacotherapeutics, nutrition, and practice management. Both ambulatory and hospital inpatient settings are utilized. Duke University Hospital, as well as Durham County General Hospital, Cape Fear Valley Hospital, and other community hospitals are used as training sites. Ambulatory training is acquired in the hospital emergency rooms and clinics, but perhaps even more importantly, in the model family medicine clinics. Each family medicine residency in the country is required to operate a model clinic that simulates the ambulatory office setting of community practices. This requirement is unique to the discipline of family medicine.

In addition to its student and residency programs, the Duke Department of Community and Family Medicine conducts a one-year fellowship to prepare family physicians for academic careers. All but one of the 19 fellows who have been trained in the nine years through 1988 are currently teaching in family medicine programs. Four are on the Duke faculty.

Other Duke faculty development activities include: the National Workshop Series, which has trained 1530 faculty from 173 programs in 43 states and from 17 programs in Canada; the Mini-Scholarship Program, which has provided 42 new faculty persons with 100 to 120 hours of teacher training per year; the Mini-Sabbatical Program, during which faculty from other training programs spend time at Duke working on a prenegotiated project; the On-Site Consultation Service by Duke faculty who assist programs across the country with planning or refinement of their faculty development programs; and the Internal Faculty Development Program for full-time faculty from the Department of Community and Family Medicine and the Department of Medicine.

These accomplishments within Duke University Medical Center during a relatively short period of time have made a significant contribution to the growth and development of the new discipline of family medicine, and Duke can be justifiably proud. But how do these programs fit within a private academic institution that is performing a major leadership role in the advancement of medical science and technology? Why not let other medical centers emphasize family medicine?

While we in family medicine at Duke support the principle that Duke should continue to direct major efforts toward tertiary care, we are convinced that these efforts will be even more successful with the inclusion of family medicine. Although other institutions may place less emphasis on tertiary care and more on family medicine, Duke cannot afford to relinquish the responsibility for family medicine entirely to others, nor to support it only halfheartedly within its own institution.

Duke needs family medicine because as an institution Duke needs: (a) to provide ambulatory general medical education for Duke students, (b) to provide cost-effective primary medical services for Duke students, faculty, and employees, (c) to train exemplary family medicine residents and fellows who will become leaders in their field and serve as future sources of patient referral to Duke, and (d) to maintain the favor and support of the general public and of the referring primary care physicians in the community, on the grounds that Duke is responding to societal needs for primary as well as tertiary medical care.

In Pursuit of Excellence

Duke needs us, but how can we as a young discipline only 20 years of age meet the challenge of academic excellence we face in order to become an essential partner with other disciplines in the mainstream of medical center educational, clinical, and research activities?

In education, we have made great strides with the development and implementation of the educational programs described above. In some ways we have led the way for other departments, in that our programs have adhered to sound educational principles by incorporating formal needs

assessment, objectives for learning, strategies for teaching, and evaluations for measuring process and outcome. Also, we have placed great emphasis on faculty development.

Clinically, we are meeting the challenge quite well in that our model family practices that were developed as teaching sites for students and residents are serving also as exemplary primary medical care facilities. On the Duke campus the Pickens Family Practice has 28,000 patient visits per year, of which 15,000 are made by Duke faculty and employees under the Duke Health Service insurance plan. Also, the Duke Student Health Services, with an additional 21,000 student visits per year, is operated out of the Pickens Building by family physicians on the Community and Family Medicine faculty. In town, the Family Medicine Center, operated jointly by Duke University and the Durham County Hospital Corporation, delivers primary care for the Durham Community at the rate of 43,000 visits per year.

In research, meeting the challenge of academic excellence has been much slower, both at Duke and in other U.S. academic medical centers. Because of the historical lack of substantive research by U.S. general practitioners before 1969, the discipline has had to train family physician researchers and develop areas of research focus.⁷ At the same time, funding for research activities has been very limited. For example, in recent years family medicine research has received less than 0.1% of the total U.S. federal health research budget.⁸

Successful research is greatly dependent on external funding from private foundations and governmental agencies such as the National Institutes of Health. In recent years competition for research grants has become increasingly competitive even for experienced investigators with successful funding track records. Biomedical research has received more support than that related to primary care. There is no National Institute for Primary Care. In family medicine, where research in primary care is more appropriate to most of the clinical activity, and where there are very few clinical faculty with research experience, funding is especially difficult to obtain.

To enable family medicine at Duke to meet the research challenge, the Department of Community and Family Medicine has set research development as one of its major goals for the next five years. Faculty members will be facilitated in their effort to become creative scholars by providing them with mentors to teach rigorous research methodology, by funding their pilot studies, and by protecting a portion of their time for research activity. We are mindful of our early stage of development and of the obstacles to accomplishment of our goals. However, we are encouraged by the increasing recognition of the importance of primary care research as evidenced by funding initiatives from the National Center for Health Services Research and the National Institute for Mental Health. We are convinced that we can become competitive for awards such as these and help family medicine become a major contributor to the national research effort.

Successful attainment of all departmental initiatives in the academic medical center is dependent upon a strong fiscal base. At Duke, each department is expected to maintain its own support from external funding and clinical revenues. Here lies a potential "Achilles heel" for family medicine, because by virtue of the very type of clinical services we provide, we do not have a large source of clinical revenue with which to underwrite our educational and research activities. Departments that provide highly sophisticated technical services are more capable of generating surpluses than we. Also, since our research track record for obtaining substantial federal and foundation funding is sparse, and since the increased competition for research funding has been problematic even for departments with strong track records, our research strategies represent only a beginning effort to attract funding that will be of the size and permanence needed for long-term stability.

With regard to all of our objectives, there is no way we can accomplish them alone. Our central theme is collaboration and integration, which absolutely depends upon the cooperation and support of other departments and administrative leaders of Duke University Medical Center. While we may be younger, less experienced, and less well funded than other departments, we believe that our long-term success is important to them individually and to the institution as a whole.

We are proud to be an integral part of this important academic medical center. Because of the diversity of our programs, our primary medical care emphasis, and our close ties to the community, we provide a unique dimension to

Duke University Medical Center that complements the tertiary care orientation of other departments and facilitates Duke's fulfillment of its societal obligation to "administer to the social welfare" of people in North and South Carolina "by way of ministering to the comfort of the sick," as stated in the Indenture of James B. Duke.² □

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Comment

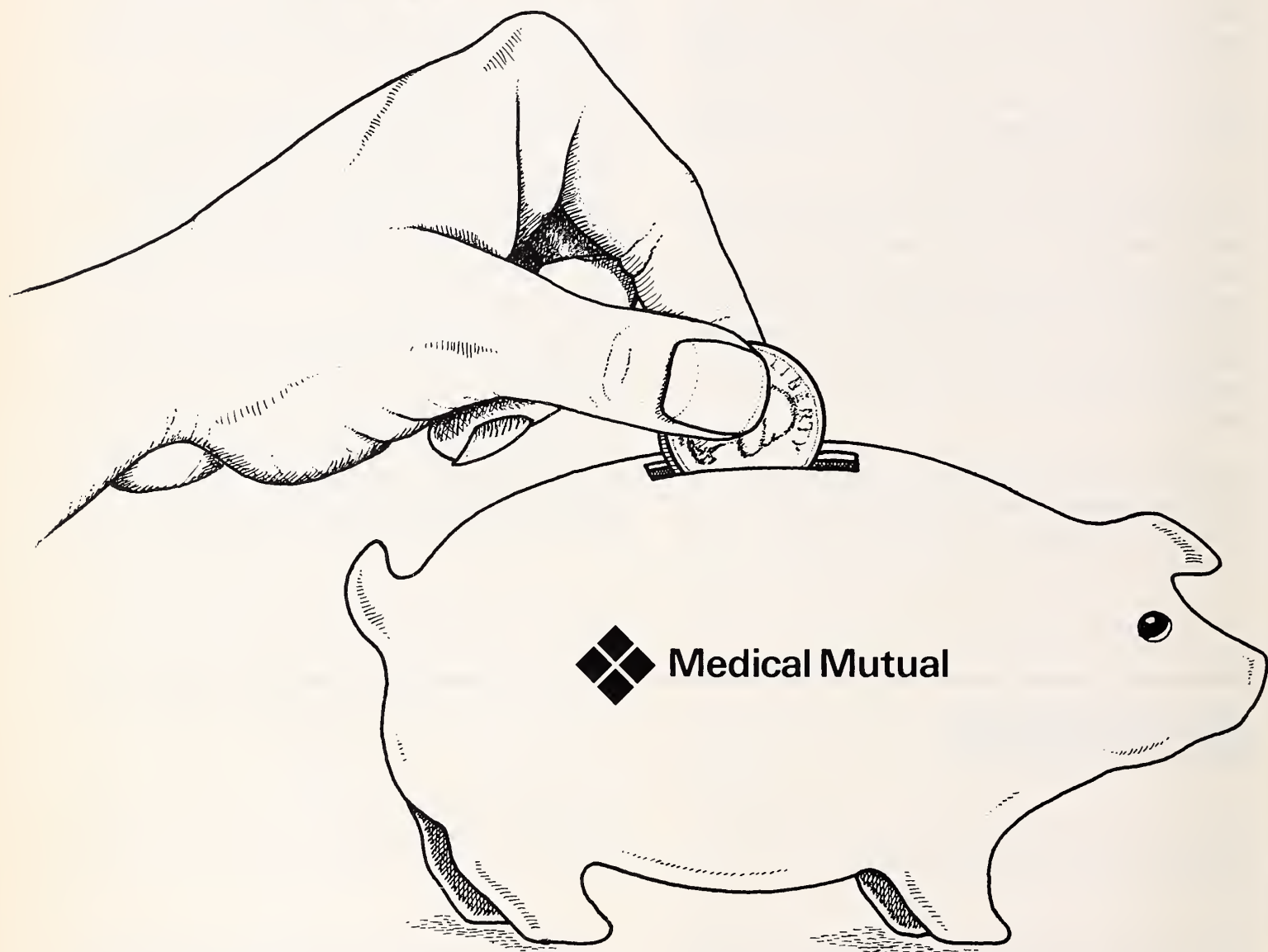
Joseph C. Greenfield, Jr., M.D.

Dr. Parkerson has written a concise and excellent description of the multiple contributions made by the Family Medicine Program to a variety of functions at Duke Medical Center. He is quite correct in emphasizing the major role played in educating medical students in outpatient medicine. Although Duke Medical Center is a large (1,050 beds) tertiary, referral hospital, it does not have the facilities to provide this important aspect of training on-site, and thus is dependent on the Family Medicine Department.

A second point Dr. Parkerson emphasizes is the training of family medicine physicians to meet the needs for medical manpower especially for North Carolina. In addition to the obvious local role these physicians play, they utilize the tertiary resources of Duke Medical Center. Clearly, the Medical Center is dependent entirely on patient referrals from physicians, and those in the practice of family medicine make up a significant portion of our referring physicians. The Family Medicine Department is extremely helpful in developing liaisons with referring physicians throughout the state. Thus, as Dr. Parkerson states, Duke Medical Center is markedly strengthened by having a viable Family Medicine Department within its program. □

Dr. Greenfield is James B. Duke Professor of Medicine, Department of Medicine, Duke University Medical Center, Durham 27710.

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"The Needle and the Damage Done"?*

Responding to a Needle Stick

Paul Becherer, M.D., and David Weber, M.D., M.P.H.

The growing epidemic of Acquired Immunodeficiency Syndrome (AIDS) has generated anxiety regarding the risks associated with occupational needle stick injuries. Since 40% to 75% of needle stick incidents are not reported, the magnitude of the problem has been difficult to define.^{1,2} The fourfold higher prevalence of hepatitis B markers in health care personnel compared with the general population, and the relationship between the exposure to blood and the prevalence of hepatitis B antibody, underscore the occupational risks.^{3,4} While many sharp devices may cause a puncture wound and blood or body fluid exposure, needles constitute the major threat, with attempts to recap a needle being involved in one-third of the injuries.¹

Although over 20 different infectious agents have been transmitted by needle stick injuries, hepatitis B virus (HBV) and human immunodeficiency virus (HIV-1) represent the major concerns.¹ As illustrated in table 1, both pose a significant threat for health care professionals because of the large reservoirs of infected persons. While the risk of HIV infection may appear more ominous, hepatitis B, a more environmentally stable pathogen frequently detected in asymptomatic patients with no known risk factors, is transmitted more efficiently by needle stick injury.⁵⁻⁷ As a result, the Centers for Disease Control (CDC) estimates that 12,000 health care workers are infected with hepatitis B each year, causing 200 to 300 deaths per year, compared to 20 to 30 total work-related HIV-1 infections.^{1,8} Delta virus, a defective virus, can only cause infection in the presence of active HBV infection. Therefore, intervention directed at hepatis

is B control can reduce the risk of delta virus infection. Non-A non-B hepatitis, which may occur following blood transfusion, parenteral drug abuse, and accidental needle stick, may also cause fulminant hepatitis and chronic active hepatitis.

Efforts to provide convenient needle disposal containers, education regarding the adoption of universal precautions and the risk of needle manipulations, such as recapping or resheathing, and prompt decontamination of spills with a 1:10 dilution of 5% sodium hypochlorite (bleach) can help to reduce the incidence of these occupational accidents. All injuries resulting in disruption of the skin integrity should be promptly and thoroughly cleaned and reported to employee health to evaluate, manage, and intervene if safety hazards arise. Although the potential for tetanus is very low, the incident provides an opportunity to review the person's

Table 1
Comparison of Hepatitis B and HIV

	Hepatitis B	HIV
# carriers in U.S.	1 million ⁹	1-1.5 million ¹⁰
% hospital patients infectious	1-1.5% ¹¹	0.3% non endemic areas 3-4% in ER, endemic areas ^{12,13}
% patients without risk factors by history	30% ¹⁴	3% ¹⁰
risk of transmission following needle stick	10-30% ^{5,6}	0.4% ⁷
# cases/yr U.S. health care workers	12,000 (200-300)	total 20-30 cases worldwide ^{8,15} deaths/yr ¹

*Neil Young

tetanus immunization status. The injury also illustrates the person's risk of occupational exposure and should, therefore, provide impetus for completion of the hepatitis B vaccine series.

Fortunately, the risk of hepatitis B and therefore delta hepatitis following needle injury can be greatly reduced if practical recommendations are observed using hepatitis B vaccine plus immune globulin (table 2).^{9,14} The administration of three intramuscular deltoid injections of either plasma derived (Heptavax) or recombinant (Recombivax) hepatitis B vaccine within a week of exposure, followed by completion of the series at one month and six months, safely elicits a protective antibody response in 80% to 90% of healthy adults. Advanced age, renal failure, and HIV-1 seropositivity may dampen the response, and the duration of detectable antibody is still unclear.¹⁶⁻²¹ If the needle source is hepatitis B surface antigen positive and the health care worker is anti-hepatitis B surface antigen negative, hepatitis B immune globulin (HBIG) should be administered. Although regular

immune globulin also contains antibody directed against hepatitis B, the thousand-fold greater titer in HBIG probably provides greater protection. Neither the vaccines nor immune globulin preparations, despite extensive experience, have been associated with transmission of HIV-1. Both immune globulin and hepatitis B vaccine can safely be used during pregnancy and can be administered at different sites during the same visit.

The effectiveness of immune globulin prophylaxis following percutaneous exposure to non-A non-B hepatitis is unclear. It may, however, be reasonable to administer immune globulin as soon as possible after exposure. In situations where the source of the needle is unclear or the source has no evidence for hepatitis and does not belong to a high risk group, the administration of questionably effective immune globulin is probably not warranted.

Unlike the scenario for hepatitis B, there is currently no known effective post-exposure prophylaxis for HIV-1. Theoretically, the administration of zidovudine (retrovir)

Table 2 Recommendations for Hepatitis Prophylaxis Following a Needle Stick

SOURCE	EXPOSED PERSON	
	UNVACCINATED	VACCINATED
HBsAg-positive	<ol style="list-style-type: none"> HBIG <ul style="list-style-type: none"> -0.06 ml/kg IM -ASAP within 1 wk -repeat at 1 mo if no vaccine given -if HBIG not available IG 0.06 ml/kg IM HB vaccine <ul style="list-style-type: none"> -ASAP within 1 wk -repeat at 1 mo, 6 mo -Heptavax 20 ug IM adult 10 ug IM children -Recombivax 10 ug IM adult 5 ug IM children 	<ol style="list-style-type: none"> test exposed person for anti HBs <ul style="list-style-type: none"> -if RIA <10SRU or EIA negative give HBIG plus booster dose of HB vaccine
High-Risk HBsAg-positive	<ol style="list-style-type: none"> HB vaccine test source for HBsAg <ul style="list-style-type: none"> -if positive HBIG x 1 	<ol style="list-style-type: none"> test exposed for anti-HBs <ul style="list-style-type: none"> -if positive no action required -if negative test source and administer HBIG and booster if source positive
Low-risk HBsAg-positive	<ol style="list-style-type: none"> HB vaccine 	<ol style="list-style-type: none"> no action required
Unknown Source	<ol style="list-style-type: none"> HB vaccine 	<ol style="list-style-type: none"> no action required
High-Risk Non-A Non-B*	<ol style="list-style-type: none"> HB vaccine IG <ul style="list-style-type: none"> -0.06 ml/kg IM -ASAP within 1 wk -repeat at 1 mo 	<ol style="list-style-type: none"> IG <ul style="list-style-type: none"> -0.06 ml/kg IM

Adapted from reference 9

*High risk groups include: homosexual males, IV drug abusers, prostitutes, institutionalized patients, prisoners, hemodialysis patients.

could, by inhibiting reverse transcriptase activity, prevent the initial viral replication required to permanently infect host lymphocytes. While there are no animal or preliminary clinical data supporting this hypothesis, Burroughs-Wellcome has a double-blind placebo-controlled protocol for victims of needle-stick HIV-1 exposure. Information can be obtained by calling 1-800/HIV-STIK.²² The North Carolina communicable disease law has defined guidelines designed to protect the health care worker and maintain confidentiality for the employee as well as the patient who was the source of the needle.²³ The physician of the source patient (i.e., not the exposed worker) should determine the risk of HIV-1 infection. If the patient is at high risk of HIV-1 infection, the physician should request permission to determine the person's HIV-1 status. Afterwards, the exposed employee should be counselled regarding the risk assessment and offered HIV-1 testing as soon as possible and at roughly 12 weeks and six months. Any febrile illness, particularly if associated with pharyngitis, headache, rash, and lymphadenopathy occurring within 12 months, might represent primary HIV-1 infection and should be reported. If there is a significant risk of exposure, the health care worker should avoid potential spread by not donating blood, sharing needles, or participating in unprotected intercourse. The exposed person should, of course, respect the confidentiality of the source patient.

The AIDS epidemic has refocused attention on occupational needle stick exposures suffered by 5% to 40% of hospital employees including nurses, technicians, laboratory workers, housekeeping and physicians.²⁴⁻²⁷ It is to be hoped that the acceptance of universal precautions, proper needle disposal, hepatitis B vaccination, and continued vigilance can reduce the 40% of needle punctures that are preventable.^{28,29} □

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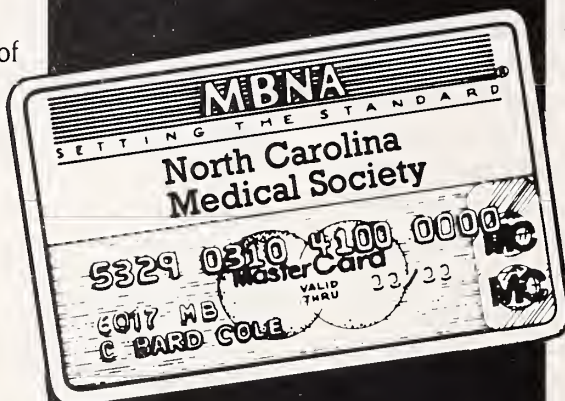
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Carcinogenesis, Mutagenesis, Impairment of Fertility — A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy — Teratogenic Effects — Pregnancy Category C. Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus; and at 50 mg/kg it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers — Studies conducted in lactating women have shown that <0.1% of the administered oral dose of nizatidine is secreted in human milk in proportion to plasma concentrations. Caution should be exercised when administering nizatidine to a nursing mother.

Use in Elderly Patients — Ulcer healing rates in elderly patients are similar to those in younger age groups. The incidence rates of adverse events and laboratory test abnormalities are also similar to those seen in other age groups. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of nizatidine included almost 5,000 patients given nizatidine in studies of varying durations. Domestic placebo-controlled trials included over 1,300 patients given nizatidine and over 1,300 given placebo. Among reported adverse events in the domestic placebo-controlled trials, sweating (11% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common in the nizatidine group. A variety of less common events was also reported; it was not possible to determine whether these were caused by nizatidine.

Hepatic — Hepatocellular injury, evidenced by elevated liver enzyme tests (SGOT [AST], SGPT [ALT], or alkaline phosphatase), occurred in some patients and was possibly or probably related to nizatidine. In some cases, there was marked elevation of SGOT, SGPT enzymes (greater than 500 IU/L) and, in a single instance, SGPT was greater than 2,000 IU/L. The overall rate of occurrences of elevated liver enzymes and elevations to three times the upper limit of normal, however, did not significantly differ from the rate of liver enzyme abnormalities in placebo-treated patients. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular — In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS — Rare cases of reversible mental confusion have been reported.

Endocrine — Clinical pharmacology studies and controlled clinical trials showed no evidence of antandrogenic activity due to Axid. Impotence and decreased libido were reported with equal frequency by patients who received Axid and by those given placebo. Rare reports of gynecostasia occurred.

Hematologic — Fatal thrombocytopenia was reported in a patient who was treated with Axid and another H₂-receptor antagonist. On previous occasions, this patient had experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumentary — Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity — As with other H₂-receptor antagonists, rare cases of anaphylaxis following administration of nizatidine have been reported. Because cross-sensitivity in this class of compounds has been observed, H₂-receptor antagonists should not be administered to individuals with a history of previous hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other — Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine administration have been reported.

Overdosage: Overdoses of Axid have been reported rarely. The following is provided to serve as a guide should such an overdose be encountered.

Signs and Symptoms — There is little clinical experience with overdosage of Axid in humans. Test animals that received large doses of nizatidine have exhibited cholinergic-type effects, including lacrimation, salivation, emesis, miosis, and diarrhea. Single oral doses of 800 mg/kg in dogs and of 1,200 mg/kg in monkeys were not lethal. Intravenous median lethal doses in the rat and mouse were 301 mg/kg and 232 mg/kg, respectively.

Treatment — To obtain up-to-date information about the treatment of overdose, a good resource is your certified regional Poison Control Center. Telephone numbers of certified poison control centers are listed in the Physicians' Desk Reference (PDR). In managing overdosage, consider the possibility of multiple drug overdoses, interaction among drugs, and unusual drug kinetics in your patient.

If overdosage occurs, use of activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance.

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Additional information is available to the profession on request.

Our AMA Delegation

Louis deS. Shaffner, M.D.

The election of Dr. James E. Davis as the first North Carolinian to be President of the American Medical Association has aroused more interest from the North Carolina Medical Society membership in the role of its AMA delegates.

North Carolina with its over seven thousand AMA members is currently entitled to nine delegates and nine alternates in the AMA House of Delegates. These 18 people make up our state's delegation to the AMA. Because of a combination of increase in membership, retirements, expiration of terms, and previous vacancies, the Society needs to elect six delegates and seven alternates this year.

Now is the opportune time for each member to consider active involvement in organized medicine on the national level. The following description of the activities and duties of a delegate may be of interest to those who may wish to seek such election.

An annual five-day meeting is held in June in Chicago, and an interim four-day meeting is held in early December at various sites, last year in Dallas, this year in Hawaii, next year in Orlando.

The business of the AMA House of Delegates is similar to, but of much greater volume, diversity, and complexity than that of the House of Delegates of our state society. The House is the policy-making body of the AMA and, by virtue of its size and its diverse membership, it is the only organization that can represent the entire medical profession nationally.

Resolutions may come to the House from state associations, from specialty societies, from the student, resident, medical school, hospital staff, and young physician sections, and from individual delegates, including those of the federal services. Reports and recommendations come from the Board of Trustees and from the various Councils; namely, Constitution and Bylaws, Long Range Planning, Medical Education, Medical Service, Legislation, Scientific Affairs, and Ethical and Judicial Affairs. These are often follow-up reports from previous meetings. Each resolution and report is assigned to a reference committee on the basis of its subject matter. Nine different committees are necessary to handle

the volume, hold hearings, and prepare reports for the full House with recommendations for action.

Our state delegation has organized itself so that each delegate and alternate is assigned to monitor a specific reference committee, and his or her duty, either alone or shared, is to become thoroughly familiar with each item to come before that committee. The delegate in turn, after discussion with others, recommends what action the delegation should take on each proposal and whether someone should testify before the reference committee. The delegate attends the entire reference committee hearing and in the report to the delegation gives assessment of the testimony, opinion of the recommendations of the reference committee, his or her recommendations for voting, and whether the matter deserves more debate from our delegation on the floor of the House.

All of this review begins a month before each meeting when each delegate and alternate receives a copy of the "Handbook." For the last meeting it was two and three-quarter inches thick and contained 196 reports and resolutions. Each member is expected to peruse the entire volume for items of particular interest as well as to prepare his or her particular assignment.

Members of the delegation usually have their first caucus in the delegation suite Saturday afternoon before the Sunday opening session. After organization of the calendar for the meeting, the review of the handbook is begun. It is continued and supplemented at subsequent daily breakfast caucuses, some beginning as early as 6:30 a.m., until all items have been brought up for consideration by the group. Each alternate is given the opportunity to debate and vote as a delegate on the floor of the House usually on those matters he or she has monitored before a reference committee and on any specific item about which he or she has a special interest.

North Carolina is a member of the Southeastern Coalition, an unofficial organization of the delegations from the southeastern states who have regional interests of mutual concern. This group usually has a joint breakfast on Sunday morning at which time each state can voice business items it desires to have supported and candidates for office it wishes to introduce. Often the President or a member of the Board will explain in some detail the position of the Trustees on some controversial item to be presented. Before the June

meeting candidates for office and for the councils address the assembly and answer questions. The Coalition usually hosts a reception one evening for the benefit of candidates from the several states.

First-time attendees are often amazed at the apparent partying and politicking which goes on between business sessions of the House. A frequent first reaction is dismay at the time, effort, and expense taken by the various state and specialty groups to host receptions to seek delegate support for candidates for elective positions. Spouses play a major role in helping to host these social gatherings.

These activities do, however, serve a very useful purpose other than to just entertain other delegates. They allow delegates from all over the country, from different backgrounds, from different professional environments, to communicate with each other on an informal one-to-one basis. Many times the conversations center around a point of view expressed formally by one in a reference committee. A candidate for office may be challenged about his or her stand on a specific issue.

This concentrated social activity helps make up for the lack of the year-round continuous if less intense association one has with peers at home. These personal contacts aid the democratic process whereby each delegate can judge those heard on the floor of the House, those he or she wishes to support as capable and knowledgeable people to lead and advise the association in its varied activities.

Although there are no written specific eligibility requirements for a delegate, the nature of a delegate's activities makes some characteristics pertinent. A delegate will feel more at home if he or she has had some previous experience in organized medicine with a state society. A delegate is convinced that the AMA has the obligation to represent the point of view of the practicing physician as well as the medical profession in general to the government, to industry, to insurance companies, and to the public in general. He or she wants to help formulate these policies. A delegate takes pride in the accomplishments of the profession, and believes the AMA has a place in setting educational standards, dispensing scientific information to its members and to the public, and setting high ethical standards for the profession. A delegate is willing to commit at least two weeks each year away from his or her practice, and finds stimulation and satisfaction in associating with colleagues from across the nation who feel a similar obligation to support the profession.

A society member who would like to participate in such AMA activities should seek nomination for election as an alternate delegate. It will take the two years of that term for the alternate to decide whether he or she has the time and inclination to seek a more active role as a delegate.

After a term as delegate, one may feel attracted to even further activities on the national level. Dr. Davis chose to run for Vice-Speaker, a position giving maximum exposure to delegates and which in time led to his election as President. Another opportunity for further service is appointment or election to a council, one for which a person has a particular

interest. The next step after serving on a council is to run for the Board of Trustees. Each member of the delegation is encouraged to consider these possibilities.

Service on a council is open to any active member of the AMA. The member need not be a delegate, but he or she must be appointed or nominated by the Board of Trustees. For elective positions on the Councils on Medical Education, Medical Service, Constitution and Bylaws, and Scientific Affairs, the Board submits two or more nominees for each vacancy. Each candidate then puts on a campaign to become known to the delegates and win the council seat. Name recognition comes from printed announcements and mailings listing qualifications, endorsements by state delegations, specialty societies, and individual delegates, receptions in hospitality suites, and presentations and interviews before state and regional caucuses of delegates.

It is to be expected that a candidate who can document previous experience in state or specialty society affairs related to the council, and who has served as delegate or alternate delegate for a year or more, has a better chance for election than a candidate with no previous experience or exposure in the AMA House of Delegates. Incumbents have a good chance for re-election. History has shown that even well known delegates often have to run more than once to be elected to a council seat. This has been true with our own Drs. Davis, Glasson, Estes, and Harris.

If elected to a council, the member will be obligated to commit more time to the additional duties. Such an election, however, gives visibility and recognition not only to the individual but to the state the individual represents. The council member is in a position to give his or her state's point of view to the council's deliberations and recommendations, which can have a nationwide effect. Council members are always looked upon not only as individuals but as representatives of their states, and what good they do also inures to the national good name of their respective state societies. By the same token, a council member can also be a source of information and advice back to the state delegation from the AMA administration.

Each state delegation is usually eager to campaign for any member who has actively sought an elected position, and often our delegation will support North Carolinians who have been nominated for office by their specialty societies.

Retiring members of the delegation are grateful for the memorable experiences they have had. May the new members in their tenure find similar satisfaction in having served the needs and upheld the honor of their profession. □

A list of open positions, including AMA delegates and alternates, appears on the next page. For those interested in serving in a Medical Society position, see also Dr. Shaffner's article in the April issue, "Running for Office" (1988;50:229).

NCMS POSITIONS AVAILABLE

Following is a list of the vacancies for positions within the North Carolina Medical Society that the Nominating Committee will consider in 1989:

President-Elect	1-year term
First Vice President	1-year term
Second Vice President	1-year term
Secretary-Treasurer	1-year term
Speaker, House of Delegates	1-year term
Vice-Speaker, House of Delegates	1-year term
AMA Delegates (6 positions)	2-year term
AMA Alternate Delegates (7 positions)	2-year term
Board of Medical Examiners (3 positions)	3-year term
Commission for Health Services (2 positions)	4-year term
Medical Care Commission (1 position)	4-year term

Nominations for the positions for Councilor, Vice Councilor, and Nominating Committee should be made to your present District Councilor. There are 18 positions for each office but several incumbents have unexpired terms and will be given first consideration for appointments under the new governance system.

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Edward C. Halperin, M.D., Book Review Editor

Plain Southern Eating, From the Reminiscences of A. L. Tommie Bass, Herbalist. Compiled and edited by J. K. Crellin. Durham: Duke University Press, \$12.50.

Reviewed by Connie Hall Mearns, 110 Hampton Court, Chapel Hill 27514.

A. L. Tommie Bass is a celebrated herbalist, storyteller and Appalachian folk hero from northeast Alabama. He has been seen on TV, heard on the radio and written about in many feature articles, but I was not familiar with him. So I am thankful that John K. Crellin, an associate professor in the Medical History Program at Duke University, has compiled and edited *Plain Southern Eating*. It is a slim book, only 113 pages counting the "Introduction," "Afterthoughts," "Glossary," and "Bibliographical Notes" by Dr. Crellin. That leaves only 68 pages of Mr. Bass's reminiscences, but they are delightfully informative and interesting pages.

Mr. Bass is 79 years old and knows all there is to know about plants, foods and customs of his region. He is not a formally educated man but has accumulated a lifetime of knowledge about subjects as varied as planting, grave digging, bee hunting, cooking, herbs and much more. The uses of herbs for medicinal remedies is surely Mr. Bass's main area of expertise, and the reason Dr. Crellin spent much of two years recording and interviewing Mr. Bass. *Plain Southern Eating* is an offshoot of that research.

As Dr. Crellin says, "Tommie Bass's recollections have special interest in relating a single personal experience, rather than the broadly collected recipes that generally make up cookbooks." The recipes are given in Mr. Bass's own words, and Dr. Crellin points out that "a lack of precision with quantities is a conspicuous feature." These are what you might call prose recipes, since there is no list of ingredients and the measurements and directions are often vague. His recipe for cornbread should give you the idea:

The way I make cornbread, now, I just take buttermilk and pour it in a pan or something and then add an egg. To make it right smart, I put two eggs, but generally I use one egg. Say we want to make a pretty little skillet of cornbread. I would use a teacupful of buttermilk, one egg, and stir it up with self-rising cornmeal, a little sugar and salt, and a little hot grease. I add a little wheat flour—whole wheat when I have it. I take a spoon—some use a fork—and mix it real good, not too stiff, but just thin enough to pour it in the hot greased iron skillet. Then I put it in the oven set for 300 until it just begins to get brown around the edges.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

An experienced cook might know how much "a little" sugar, salt, hot grease and wheat flour is, but I am afraid I do not. But even I could follow his recipe for baked peaches. It too calls for "a little" sugar but this time I know that means as much as your sweet tooth demands:

We had a lot of these clingstone peaches. They called them White English, and they was really white, great big rascals, so I washed some that didn't have no worms and put them in a baking pan with a little sugar, and put foil over them, and put them in the stove at about 300 for about twenty or twenty-five minutes, just for the world like you do apples. They was just as juicy, you know, and gosh plum, what a good flavor.

Mr. Bass also tells us how his mother made apple vinegar, how he cooks (the longer, the better) a mess of collards, poke salat, turnips, jelly, biscuits, pies and more. *Plain Southern Eating* satisfies my main requirement of a cookbook—it made me hungry. We may be decades apart in age and many miles apart geographically, but Tommie Bass and I are both Southerners and we share childhoods nourished with cornbread, collards, biscuits, molasses and baked sweet potatoes dripping with melted butter. Reading about these foods isn't as good as eating them, but it's still fun and even sentimental. "Gosh, I wish I had one of mother's biscuits, now," he says. I know the feeling, that longing for the food or your youth. "Comfort food" is what some people call it.

But this is not a traditional cookbook. It is more like an oral history because these are Mr. Bass's words unchanged by grammatical or stylistic corrections. What we read is how he talks and that is the great charm of the book. Dr. Crellin writes that when reading the book, "it is helpful to imagine [Mr. Bass] chatting with visitors on the porch of his shack or in the yard," and it is indeed easy to do so.

He surely does talk about cooking and food, but what he is really talking about is a way of life that is quickly disappearing (even Mr. Bass eats biscuits from Hardee's these days). Reading this book is like a long afternoon chat with your grandfather. The value of grandparents and people like Mr. Bass is they tend to answer questions you haven't thought to ask. I have lived in the South my entire life yet I have never really known what hominy is. I don't know why I never asked, but Mr. Bass tells me in this book.

He shares his knowledge (or perhaps know-how is more accurate) with us. Honey, for most of us, is easily attainable at the store. But for Mr. Bass it was a treat "we only had when I found a bee tree and got the wild honey." He tells us how to "hunt" a bee, how they made molasses, and that the best time for sowing seeds is in May and September under the sign

PROMOTE AIDS EDUCATION

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Wear the t-shirt that promotes AIDS education. The t-shirts' slogan "**Spread the Word, Not the Disease - AIDS**" reflects the Medical Student Section's ongoing commitment to AIDS education. The Section sponsors a community action program "AIDS Education: Medical Students Respond" through which medical students help educate adolescents about AIDS.

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of the twin and balances. If you plant in July and August, under the sign of the heart or bowels, the crop will "bring itself to death." He describes killing hogs and smoking meat, and time and again reminds us what resourceful, self-sufficient people he and his neighbors were. They lived on what nature and their own very hard work provided.

Theirs was not a disposable society. They made the most out of what they had. "Corn is a wonderful plant," Mr. Bass says. "We didn't waste any of it." They ate it roasted and boiled, made hominy out of it, ground it for cornmeal and from that made cornbread, spoon bread, mush and mush biscuits. They fed it to their chickens and livestock, and bootleggers used it to make whiskey. The corn cobs were used for toilet paper and kindling. And Mr. Bass used the corn silks to make a tea which "is a real good kidney medicine."

Mr. Bass's interest in herbs and home remedies is also indicative of his resourcefulness. Most things in his life served more than one purpose, and plants and food were no exception. He tells us that boiled turnips are good to eat and boiled turnips and molasses are good for coughs and colds, as is vinegar stew. Vinegar is also an excellent rust and stain remover. Tea made from persimmon bark is good "for the sore mouth, to stop blood diarrhea, thrash, and good to soak one's feet in if you have athlete's foot." Ordinary buttermilk will ease an upset stomach, soothe skin ailments and remove mildew. He even includes his recipe for Bass Quick Rub, his much sought after salve used to treat bee stings, poison ivy and various aches and pains. Mr. Bass added a few ingredients, but basically this is the same recipe his great-grandparents brought over from England. In Mr. Bass's neck of the woods, the customs and knowledge of the past are respected and passed on. Nothing is thrown out, nothing is wasted. It seems only fitting that he also runs a junkyard.

Dr. Crellin writes the introduction to the book and also includes a glossary listing the scientific names, descriptions and uses of the plants mentioned by Mr. Bass. In his "Afterthoughts," Dr. Crellin discusses the nutritional value of specific foods and the Southern diet in general. He also discusses pellagra, a niacin deficiency disease once prevalent in the South. However, even though Mr. Bass had heard of the disease, it never affected him or his community, so I wonder about the inclusion of it in the book. Dr. Crellin has interesting things to say but his scholarly style of writing is very different from Mr. Bass's colloquial style. It requires the reader to shift gears.

Dr. Crellin is to be commended for gathering into book form the words and wisdom of A. L. Tommie Bass. It preserves for us one man's memories of a way of life we occasionally get a glimpse of at folk exhibits or festivals. But Mr. Bass is the real thing, and I guess if you can't have him as a neighbor, this book is the next best thing. He says in his recipe for Bass Quick Rub, "...I am past 74 years old, so want to pass it on to other folks." It seems to me that passing it on to other folks is what this book is all about. □

Letters to the Editor

On Prayer

To the Editor:

We are involved in a study of the therapeutic effects of intercessory prayer and are interested in hearing from anyone who has conducted such work. If you have carried out such a study but have never published the results, could you please contact us? If you have not personally been involved in such a study but know people who have, would you please share their names and addresses with us? Thank you for your cooperation.

Dr. Michael Zimmerman
Professor of Biology
Oberlin College
Oberlin, Ohio 44074

Dr. Jeffrey A. Witmer
Assistant Professor of Mathematics
Oberlin College
Oberlin, Ohio 44074

About the SAMA

To the Editor:

I enjoyed reviewing the article by Dr. Preston Reynolds about the Student American Medical Association (SAMA) (NCMJ 1989;50:95-102) and its evolution through the years. Her perspectives are appropriate. Her information is accurate, within the limits of her sources.

There is, however, a not so subtle undercurrent of criticism directed toward the SAMA of the 1950s and 1960s and toward the AMA throughout.

She notes that in 1967 and 1968 there occurred "... dramatic shift." She also notes that it was the "Junior AMA" and was described as the "training ground for citizenship in the AMA." This implies (and in fact she states) that "the membership did not engage in debates over controversial issues in medical education or health care delivery." Wrong. As SAMA Regional Vice-President and National Vice-President during 1961-1963 I was involved in and witnessed intense formal and informal debates in both areas.

In retrospect, SAMA was moving toward and discussing involvement with community health projects and social issues affecting poor and poverty medical care. The SAMA evolution was just that—an evolution—and part of the natural process of movement toward a goal and to remain in tune with society. In fact, SAMA's pendulum swung significantly toward excesses in the SHO direction, promoting "activist apathy" which not only allowed but encouraged inappropriate efforts outside the already established medical democratic pathways. The 1960s evolution reflected in SAMA

and organized medicine was equal in intensity to that ongoing in other segments of society.

The AMA, indeed, was having its own evolution. Flexibility was demonstrated by its attitudes toward SAMA through the 1960s. Medical School faculties also allowed flourishing of the SAMA evolution through the 1960s. Dr. Amos Johnson of the American Academy of Family Practice, a true conservative and a visionary for his own specialty, was likewise helpful in SAMA efforts. The 1950s and early 1960s SAMA leadership positioned SAMA appropriately just as did the later leadership in the late 1960s, 1970s and 1980s.

The early 1960s featured much ongoing effort within SAMA. My own school at Duke, the other North Carolina schools, the region and SAMA nationally were active. The Duke Endowment—SAMA Externship Program (the externship program which placed Duke medical students in rural areas throughout North Carolina) and the Rotating Internship Program were partially SAMA sponsored programs. Those of us involved realize the lasting value of those programs.

The history of the Student American Medical Association tells us that:

1 The SAMA leadership from the 1950s through the 1980s were all competent men and women devoted to the practice of medicine, to quality basic and continuing medical education and to the delivery of care to the medically underserved population.

2 The American Medical Association relationship was invaluable to SAMA during its early years and remains so in 1989. Though *on the whole* a positive move, the name change to AMSA had and has its good and bad points.

3 All of us at any stage, whether early, mid or late M.D. career, need to *be involved* and *within our system*. We should not adopt a posture outside organized medicine. That includes strong support of NC-MED PAC and AM PAC.

4 The medical world is better for SAMA having been envisioned and developed. SAMA's contributions, hopefully, will continue indefinitely.

Angus M. McBryde, Jr., M.D.
Charlotte Orthopaedic Clinic
120 Providence Road
Charlotte 28207

More on STDs

To the Editor:

Your symposium on sexually transmitted diseases in the March issue of the journal (NCMJ 1989;50:117-66) brought back memories of our joint efforts to control V.D. in Atlanta

during World War II. At that time, we organized a G.I.D. (Genito-Infectious Disease) clinic to combat the near epidemic of these infections, which were considered to be so severe as to affect the war effort.

I was intrigued that your review paid so little attention to the so-called "minor" venereal diseases we saw back then, i.e., chancroid, granuloma inguinale and lymphogranuloma venereum (LGV). These infections were not always minor, and LGV, particularly, produced serious complications such as rectal strictures in women. Have these old time venereal disorders been eradicated or are they no longer considered to be a significant problem?

You may also recall that in those "good ole days" we changed the name from venereal disease to genito-infectious disease hoping that this would lead to greater acceptance of

these disorders and earlier treatment. Does the fact that they are now called "sexually transmitted diseases" (STD) indicate an even more frank and open attitude, with less reluctance to seek therapy?

Undoubtedly, the terms VD, GID and STD will continue to change and new sexually related diseases such as AIDS will replace the old ones. Under one name or another, however, I predict that they will always be a public health problem as long as Venus (the root of the word venery) beckons. After all, "What's in a name?"

Albert Heyman, M.D.
Professor Emeritus, Neurology
Duke University Medical Center
Durham 27710

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- Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). An acute study of oral diltiazem in patients with impaired ventricular function (ejection fraction $24 \pm 6\%$) showed improvement in indices of ventricular function without significant decrease in contractile function (dp/dt). Experience with the use of CARDIZEM (diltiazem hydrochloride) in combination with beta-blockers in patients with impaired ventricular function is limited. Caution should be exercised when using this combination.
- Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
- Acute Hepatic Injury.** Mild elevations of transaminases with and without concomitant elevation in alkaline phosphatase and bilirubin have been observed in clinical studies. Such elevations were usually transient and frequently resolved even with continued diltiazem treatment. In rare instances, significant elevations in enzymes such as alkaline phosphatase, LDH, SGOT, SGPT, and other phenomena consistent with acute hepatic injury have been noted. These reactions tended to occur early after therapy initiation (1 to 8 weeks) and have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in some cases, but probable in some. (See PRECAUTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.

Dermatological events (see ADVERSE REACTIONS section) may be transient and may disappear despite continued use of CARDIZEM. However, skin eruptions progressing to erythema multiforme and/or exfoliative dermatitis have also been infrequently reported. Should a dermatologic reaction persist, the drug should be discontinued.

Drug Interaction. Due to the potential for additive effects, caution and careful titration are warranted in patients receiving CARDIZEM concomitantly with any agents known to affect cardiac contractility and/or conduction. (See WARNINGS.) Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

As with all drugs, care should be exercised when treating patients with multiple medications. CARDIZEM undergoes biotransformation by cytochrome P-450 mixed function oxidase. Coadministration of CARDIZEM with other agents which follow the same route of biotransformation may result in the competitive inhibition of metabolism. Dosages of similarly metabolized drugs, particularly those of low therapeutic ratio or in patients with renal and/or hepatic impairment,

may require adjustment when starting or stopping concomitantly administered CARDIZEM to maintain optimum therapeutic blood levels.

Beta-blockers: Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated, but available data are not sufficient to predict the effects of concomitant treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities.

Administration of CARDIZEM (diltiazem hydrochloride) concomitantly with propranolol in five normal volunteers resulted in increased propranolol levels in all subjects and bioavailability of propranolol was increased approximately 50%. If combination therapy is initiated or withdrawn in conjunction with propranolol, an adjustment in the propranolol dose may be warranted. (See WARNINGS.)

Cimetidine: A study in six healthy volunteers has shown a significant increase in peak diltiazem plasma levels (58%) and area-under-the-curve (53%) after a 1-week course of cimetidine at 1,200 mg per day and diltiazem 60 mg per day. Ranitidine produced smaller, nonsignificant increases. The effect may be mediated by cimetidine's known inhibition of hepatic cytochrome P-450, the enzyme system probably responsible for the first-pass metabolism of diltiazem. Patients currently receiving diltiazem therapy should be carefully monitored for a change in pharmacological effect when initiating and discontinuing therapy with cimetidine. An adjustment in the diltiazem dose may be warranted.

Digitalis: Administration of CARDIZEM with digoxin in 24 healthy male subjects increased plasma digoxin concentrations approximately 20%. Another investigator found no increase in digoxin levels in 12 patients with coronary artery disease. Since there have been conflicting results regarding the effect of digoxin levels, it is recommended that digoxin levels be monitored when initiating, adjusting, and discontinuing CARDIZEM therapy to avoid possible over- or under-digitalization. (See WARNINGS.)

Anesthetics: The depression of cardiac contractility, conductivity, and automaticity as well as the vascular dilation associated with anesthetics may be potentiated by calcium channel blockers. When used concomitantly, anesthetics and calcium blockers should be titrated carefully.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in *in vitro* bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded from clinical studies.

The adverse events described below represent events observed in clinical studies of hypertensive patients receiving either CARDIZEM Tablets or CARDIZEM SR Capsules as well as experiences observed in studies of angina and during marketing. The most common events in hypertension studies are shown in a table with rates in placebo patients shown for comparison. Less common events are listed by body system; these include any adverse reactions seen in angina studies that were not observed in hypertension studies. In all hypertensive patients studied (over 900), the most common adverse events were edema (9%), headache (8%), dizziness (6%), asthenia (5%), sinus bradycardia (3%), flushing (3%), and 1° AV block (3%). Only edema and perhaps bradycardia and dizziness were dose related. The most common events observed in clinical studies (over 2,100 patients) of angina patients and hypertensive patients receiving CARDIZEM Tablets or CARDIZEM SR Capsules were (ie, greater than 1%) edema (5.4%), headache (4.5%), dizziness (3.4%), asthenia (2.8%), first-degree AV block (1.8%), flushing (1.7%), nausea (1.6%), bradycardia (1.5%), and rash (1.5%).

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Adverse	Diltiazem N=315 # pts (%)	Placebo N=211 # pts (%)
headache	38 (12%)	17 (8%)
AV block first degree	24 (7.6%)	4 (1.9%)
dizziness	22 (7%)	6 (2.8%)
edema	19 (6%)	2 (0.9%)
bradycardia	19 (6%)	3 (1.4%)
ECG abnormality	13 (4.1%)	3 (1.4%)
asthenia	10 (3.2%)	1 (0.5%)
constipation	5 (1.6%)	2 (0.9%)
dyspepsia	4 (1.3%)	1 (0.5%)
nausea	4 (1.3%)	2 (0.9%)
palpitations	4 (1.3%)	2 (0.9%)
polyuria	4 (1.3%)	2 (0.9%)
somnolence	4 (1.3%)	—
alk phos increase	3 (1%)	1 (0.5%)
hypotension	3 (1%)	1 (0.5%)
insomnia	3 (1%)	1 (0.5%)
rash	3 (1%)	1 (0.5%)
AV block second degree	2 (0.6%)	—

In addition, the following events were reported infrequently (less than 1%) or have been observed in angina trials. In many cases, the relation to drug is uncertain.

Cardiovascular: Angina, arrhythmia, bundle branch block, tachycardia, ventricular extrasystoles, congestive heart failure, syncope.

Nervous System: Amnesia, depression, gait abnormality, hallucinations, nervousness, paresthesia, personality change, tinnitus, tremor, abnormal dreams.

Gastrointestinal: Anorexia, diarrhea, dysgeusia, mild elevations of SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase, thirst.

Dermatological: Petechiae, pruritus, photosensitivity, urticaria.
Other: Amblyopia, CPK increase, dyspnea, epistaxis, eye irritation, hyperglycemia, sexual difficulties, nasal congestion, nocturia, osteoarthral pain, impotence, dry mouth.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. Definitive cause and effect relationship between these events and CARDIZEM therapy cannot yet be established.

Issued 1/89

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May 11, 12

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Place: Raleigh

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Fee: \$150

Info: Helen Creech, R.N., Course Coordinator, Rex Hospital, 4420 Lake Boone Trail, Raleigh 27607. 919/783-3161

May 15-19

Diagnostic Ultrasound: Echocardiography

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

May 18

The Edward S. Orgain Symposium

Place: DUMC, Searle Center, Durham

Credit: 7 hours Category I AMA, 0.7 CEU

Fee: \$100-Physicians; \$25-DUMC Students, Fellows, Nurses and Senior Staff; \$40-Others

Info: Galen S. Wagner, M.D., DUMC, Div. of Cardiology, Box 31211, Durham 27710. 919/681-2255

May 18, June 8, 15

The Future of Public Health

Place: Winston-Salem, Greenville, Fayetteville, respectively

Fee: \$40

Info: Brenda Mauer, Registrar, Office of CME, UNC School of Public Health, CB #8165, Miller Hall, Chapel Hill 27599-8165. 919/966-4032

May 19

Recent Advances in Psychiatry

Place: Winston-Salem

Credit: 6 hours Category I AMA

Fee: \$100

Info: Sally H. Gulley, Division of CME, Bowman Gray Sch. of Med., Winston-Salem 27103. 919/748-4450

May 19-20

The 18th Annual Pediatric Pulmonary/GI Program

Place: Durham

Fee: \$100

Info: Alexander Spock, M.D., DUMC, Box 2994, Durham 27710. 919/681-3364

May 20

Update in Pathology

Place: Greenville

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

May 20

The Value of Cardiac Rehabilitation

Place: Fayetteville

Credit: 3 CME credits

Fee: \$15

Info: Denis Carpenter, Patient Education, Cape Fear Valley Medical Center, P.O. Box 2000, Fayetteville 28302. 919/323-6151

May 22-23

Diagnostic Ultrasound: Urology

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

June 5-9

Diagnostic Ultrasound: Obstetrics

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

June 7-11

Procedural Skills for Family Physicians

Place: Greenville

Credit: 20 rs Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

June 12-16

Diagnostic Ultrasound: Radiology (Abdomen)

Place: Winston-Salem

Credit: 7 hours Category I AMA

Info: Registrar, Ultrasound Center, Bowman Gray School of Medicine, Winston-Salem 27103. 919/748-4505

June 30-July 2

19th Annual Sports Medicine Symposium

Place: Shell Island Hotel, Wrightsville Beach, NC

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Info: W. Alan Skipper, Executive Assistant, Conferences,

North Carolina Medical Society, P.O. Box 27167,
Raleigh 27611. 919/833-3836.

July 10-14

31st Annual Postgraduate Course/Morehead Symposium

Place: Sheraton Hotel, Atlantic Beach, NC

Credit: Category 1 AMA, AAFP, CEUs

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

July 14-16

NC Chapter Meeting - American College of Surgeons

Place: Grove Park Inn, Asheville, NC

Credit: 8 hours Category 1 AMA

Info: Mrs. Carol Russell, Executive Assistant, Specialty
Societies, NCMS, P.O. Box 27167, Raleigh 27611

July 16-21

24th Annual Meeting, Microbeam Analysis Society

Place: Asheville

Credit: Category 1 AMA, CEUs

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

July 23-27

Southern Ob/Gyn Seminar

Place: Asheville

Credit: 15 hours Category I AMA

Info: Otis Duck, M.D., So. OB/GYN Seminar, Inc., Drawer
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July 24-29

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In Memoriam

Rufus Stuart

I described the discovery of the "Stuart Factor" (coagulant Factor X) in the June 1988 issue of the North Carolina Medical Journal (49:328-31). The article concentrated on the history of the discovery and the role of Factor X (Roman 10) in the blood coagulation cascade. I mentioned toward the end that the hero, Mr. Rufus Stuart of Ashe County, was a remarkable man as you will see.

Mr. Stuart was born in 1920 and died on January 16, 1989 at age 69. He left a wife, six children, and 16 grandchildren. In addition to his lifetime coagulation disorder, he developed chronic pelvic osteomyelitis in 1962, and lung carcinoma in 1987. I attended his funeral, together with my wife and Dr. Harold Roberts, who had been his personal physician in Chapel Hill for many years. It was a very moving experience. Mr. Stuart was buried on a small knoll across a secondary road from his beloved Liberty Baptist Church, where he had been baptized, and ordained, and where he had preached.

It would be a massive research project to try to tabulate and compute the cost of all the trips that Mr. Stuart made from Ashe County to Chapel Hill, a distance of 165 miles. Some were as an out-patient, for dental care by Dr. W. P. Webster, or to donate blood for use as a diagnostic reagent. Most trips, however, were for admission as an in-patient for one serious complication or another. One lasted 15 months! His bleeding tendency was controlled quite well by periodic infusions of plasma, and he must have received thousands.

The transfusion therapy was not without complication, however. He must have had hepatitis in 1962, because we remember his being jaundiced at one point during his longest stay. He developed salmonella osteomyelitis of the pelvis, possibly from a contaminated plasma sample, and also became HIV positive toward the end of his life. He had been crippled progressively from youth by repeated hemarthroses which had forced him to drop out of the eighth grade. His last

blow, and perhaps the fatal one, was squamous cell carcinoma of the lung which was resected 18 months before his death, but recurred. It and cataracts were the main conditions not related to homozygosity for a mutant F.X gene or its treatment.

The latest scientific thing learned about him is that Stuart defect apparently results from a point mutation in the F.X gene which causes an amino acid substitution in the heavy chain of the peptide. The basic genetic defect was defined just before his death and is to be published soon. At his funeral I became aware for the first time, in a conversation with his oldest son, that his (heterozygous) children and half the grandchildren have a mild tendency toward free bleeding, roughly similar to subjects on heavy doses of aspirin.

There must have been hundreds of staff members and students of the N.C. Memorial Hospital in Chapel Hill who attended to Mr. Stuart's needs as a patient. He exerted as much of an effect on us as we on him. Despite constant pain, he never complained. He was always cheerful and had a joke for everyone. A Baptist preacher never at a loss for words, he was frequently called on to help teach Hematology. He was unself-conscious and, although unlettered, was very articulate concerning the *Weltanschauung* of a person afflicted from birth with a crippling, life-threatening disease. A U.S. Navy photographic team which caught him on film in a documentary about prototype bleeder patients in 1972 has preserved his charisma for posterity. Unfortunately I am unable to find my copy.

Rufus Stuart's death ends an era in the history of blood coagulation research and patient care in Chapel Hill. He will be remembered as long as any of us who knew him are alive, and the Navy film provides a record for future students.

John B. Graham, M.D.

Distinguished Professor of Pathology
University of North Carolina at Chapel Hill

Morris A. Lipton, M.D.

Dr. Morris A. Lipton, founder of the Biological Sciences Research Center at the University of Chapel Hill, died Wednesday at his Chapel Hill home of cancer. He was 73.

"With a brilliant and agile mind, magnetic charm and humor, deep compassion and an exquisite sense of social responsibility, Dr. Morris Lipton has been a giant of psychiatry in the state and nation," said Dr. Stuart Bondurant, Dean of the School of Medicine.

"He has been a major force in shaping this medical school," Bondurant said. "He leaves an indelible legacy in

buildings, in programs of patient care, in teaching and research, and in his influence on the careers of thousands of his students and colleagues."

Dr. David S. Janowsky, chairman of the Department of Psychiatry since 1986, said, "Dr. Lipton was a highly revered and treasured member of our department and a dear friend of mine.

"He was a very wise and generous mentor and trained and influenced the careers of a multitude of young professionals, many of whom have gone on to distinguished careers

in academic psychiatry."

Dr. Lipton joined the faculty at the UNC School of Medicine in 1959 as an associate professor of psychiatry and director of research development. He served as chairman of the psychiatry department from 1970 to 1973 and professor with appointments in psychiatry as well as biochemistry and nutrition. He was named a Sarah Graham Kenan professor of psychiatry in 1972.

Dr. Lipton was named director of the Biological Sciences Research Center in 1965. During his 21-year tenure, he built a research team that included biochemists, endocrinologists, geneticists, internists, neurologists, pediatricians, pharmacologists and research psychiatrists.

The center, part of the Child Development Research Institute, conducts research on the biological causes for mental retardation, learning disabilities and related aspects of human development and trains professionals who work in those areas.

Dr. Lipton's research career was devoted to the study of drugs that influence mind and behavior. In 1978, for example, he was senior editor of a 160-chapter book that summarized for students, psychiatrists and researchers the current knowledge of the use and means of action of drugs that act on the mind. The volume was developed by the American College of Neuropsychopharmacology, of which Dr. Lipton was a past president.

He also was influential nationally. As a member of President Lyndon B. Johnson's Commission on Obscenity and Pornography, Dr. Lipton was co-author of the group's final report. He also served on the National Advisory Council on Drug Abuse for the Alcohol, Drug Abuse and Mental Health Administration from 1979 to 1982. In 1980 he was a Kaiser Permanente Fellow at the Center for Advanced Studies in the Behavioral Sciences in Palo Alto, California.

In 1984 Dr. Lipton received the Distinguished Scientific Service Award from the University of Chicago Medical Alumni Association.

In February the Biological Sciences Research Center dedicated a conference room to honor Dr. Lipton. The center turned his former office into a conference room that is being used for seminars by invited speakers and internal scientific presentations. A picture of Dr. Lipton also hangs in the room.

A native of New York City, Dr. Lipton entered the City College of New York in 1931 at age 15 and graduated in 1935. He received a doctoral degree from the University of Wisconsin in 1939 and a medical degree from the University of Chicago in 1948.

Dr. Lipton is survived by his wife, Barbara Lipton; a son, David Lipton of Raleigh; two daughters, Judy Lipton of Seattle and Susie Lipton of San Antonio; a brother, Gary Lipton of North Hollywood; and four grandchildren.

In lieu of flowers, the family requested that memorials be made to Physicians for Social Responsibility, N.C. Triangle Chapter, P.O. Box 3218, Chapel Hill, NC 27514.

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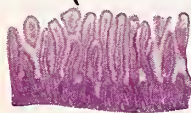

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BRIEF SUMMARY

CONTRAINDICATIONS

There are no known contraindications to the use of sucralfate.

PRECAUTIONS

Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that simultaneous administration of CARAFATE (sucralfate) with tetracycline, phenytoin, digoxin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The clinical significance of these animal studies is yet to be defined. However, because of the potential of CARAFATE to alter the absorption of some drugs from the gastrointestinal tract, the separate administration of CARAFATE from that of other agents should be considered when alterations in bioavailability are felt to be critical for concomitantly administered drugs.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Chronic oral toxicity studies of 24 months' duration were conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). There was no evidence of drug-related tumorigenicity. A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies were not conducted.

Pregnancy: Teratogenic effects. Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients treated with sucralfate, adverse effects were reported in 121 (4.7%).

Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

OVERDOSAGE

There is no experience in humans with overdosage. Acute oral toxicity studies in animals, however, using doses up to 12 gm/kg body weight, could not find a lethal dose. Risks associated with overdosage should, therefore, be minimal.

DOSAGE AND ADMINISTRATION

The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

HOW SUPPLIED

CARAFATE (sucralfate) 1-gm tablets are supplied in bottles of 100 (NDC 0088-1712-47) and in Unit Dose Identification Paks of 100 (NDC 0088-1712-49). Light pink scored oblong tablets are embossed with CARAFATE on one side and 1712 bracketed by C's on the other.

Issued 1/87

Reference:

1. Eliakim R, Ophir M, Rachmilewitz D: *J Clin Gastroenterol* 1987;9(4):395-399.

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YOCON[®] YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympathicolytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

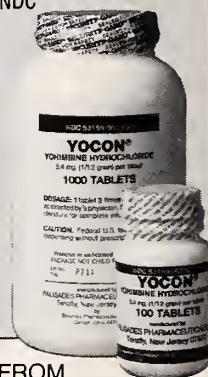
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon[®] 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

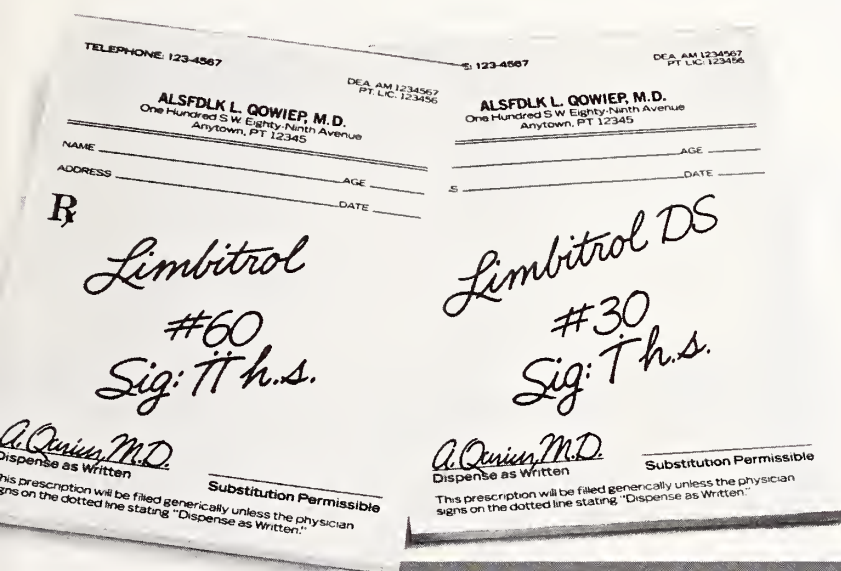
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References: 1. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 2. Feighner JP, et al: *Psychopharmacology* 61:217-225, Mar 22, 1979.

Limbitrol[®]

Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, a summary of which follows:

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants; concomitant use with MAOIs or within 14 days of monoamine oxidase inhibitors (then initiate cautiously, gradually increasing dosage until optimal response is achieved); during acute recovery phase following myocardial infarction.

Warnings: Use with caution in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur when used with anticholinergics. Closely supervise cardiovascular patients. Arrhythmias, sinus tachycardia, prolongation of conduction time, myocardial infarction and stroke reported with tricyclic antidepressants, especially in high doses. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations. Consider possibility of pregnancy when instituting therapy.

Withdrawal symptoms of the barbiturate type have occurred after discontinuation of benzodiazepines (see Drug Abuse and Dependence).

Precautions: Use cautiously in patients with a history of seizures, in hyperthyroid patients, those on thyroid medication, patients with impaired renal or hepatic function. Because of suicidal ideation in depressed patients, do not permit easy access to large quantities of drug. Periodic liver function tests and blood counts recommended during prolonged treatment. Amitriptyline may block action of guanethidine or similar antihypertensives. When tricyclic antidepressants are used concomitantly with cimetidine (Tagamet), clinically significant effects have been reported involving delayed elimination and increasing steady-state concentrations of the tricyclic drugs. Use of Limbitrol with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Should not be taken during the nursing period or by children under 12. In elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects. Inform patients to consult physician before increasing dose or abruptly discontinuing this drug.

Adverse Reactions: Most frequent: drowsiness, dry mouth, constipation, blurred vision, dizziness, bloating. Less frequent: vivid dreams, impotence, tremor, confusion, nasal congestion. Rare: granulocytopenia, jaundice, hepatic dysfunction. Others: many symptoms associated with depression including anorexia, fatigue, weakness, restlessness, lethargy.

Adverse reactions not reported with Limbitrol but reported with one or both components or closely related drugs: **Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke. **Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania, increased or decreased libido. **Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns. **Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract. **Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus. **Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia. **Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue. **Endocrine:** Testicular swelling, gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion. **Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

Drug Abuse and Dependence: Withdrawal symptoms similar to those noted with barbiturates and alcohol have occurred following abrupt discontinuance of chlordiazepoxide; more severe seen after excessive doses over extended periods; milder after taking continuously at therapeutic levels for several months. Withdrawal symptoms also reported with abrupt amitriptyline discontinuation. Therefore, after extended therapy, avoid abrupt discontinuation and taper dosage. Carefully supervise addiction-prone individuals because of predisposition to habituation and dependence.

Overdosage: Immediately hospitalize patient. Treat symptomatically and supportively. I.V. administration of 1 to 3 mg physostigmine salicylate may reverse symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

How Supplied: Double strength (DS) Tablets, white, film-coated, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt), and Tablets, blue, film-coated, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500; Tel-E-Dose[®] packages of 100; Prescription Paks of 50.

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In the depressed and anxious patient

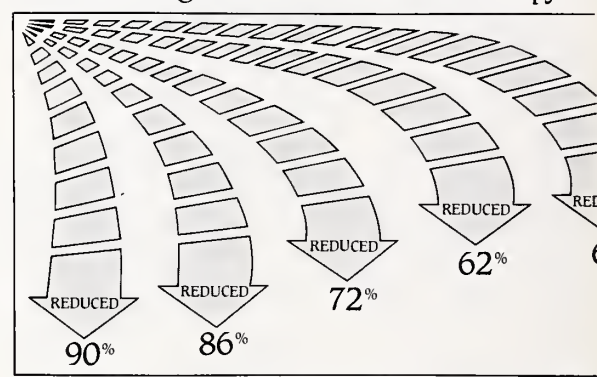
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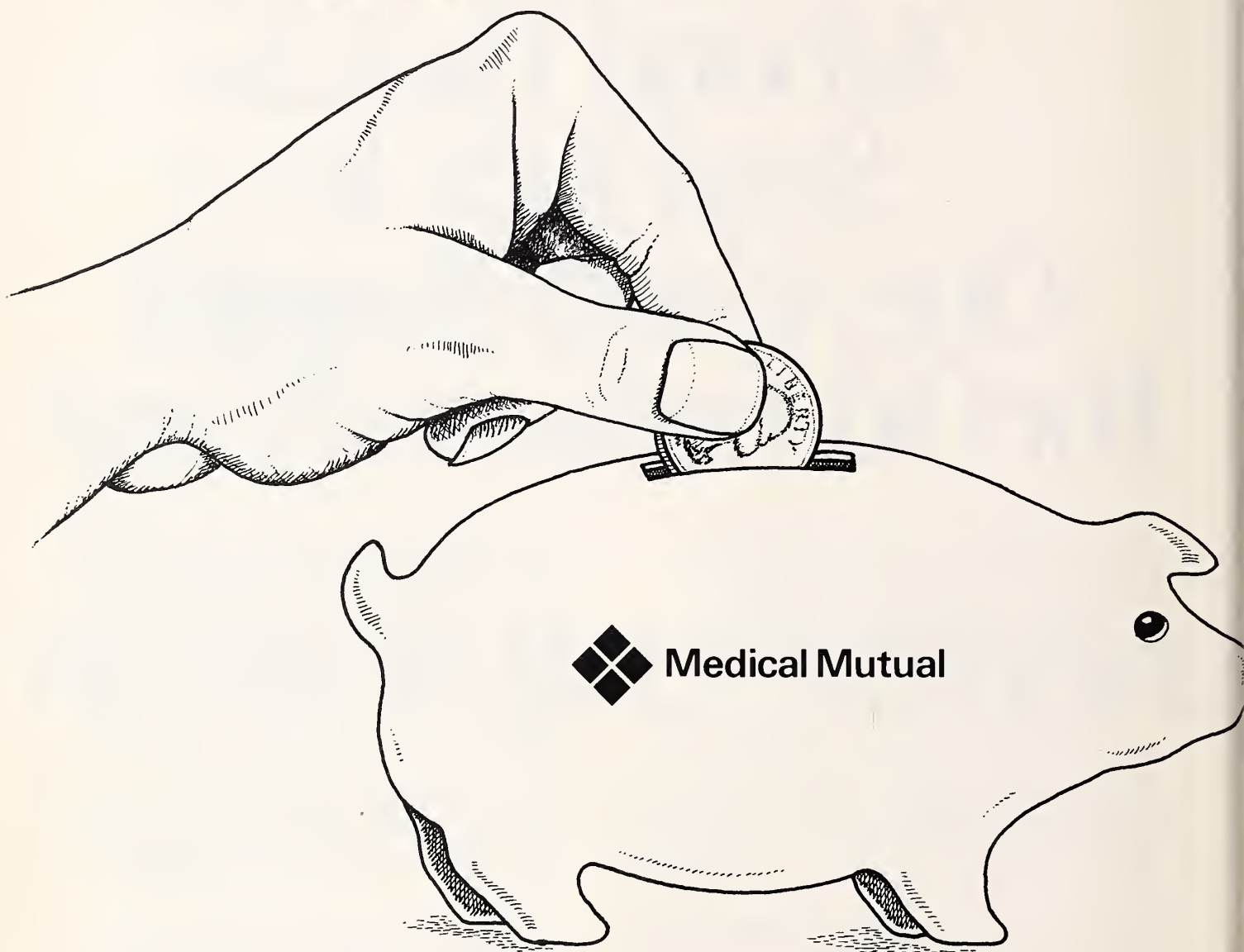


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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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Rapid Tests of Adrenocortical Function

Intravenous Versus Intramuscular Administration of Synthetic ACTH

Joseph B. Hawkins, Jr., and Warner M. Burch, M.D.

The evaluation of patients for suspected primary or secondary adrenal insufficiency is often considered in the clinical setting of fatigue, malaise, weakness, anorexia, and weight loss. A single determination of plasma cortisol or urinary steroids rarely distinguishes adrenal insufficiency from normal function. Rapid screening tests using synthetic adrenocorticotrophic hormones (ACTH) administered intravenously¹⁻⁴ or intramuscularly⁵⁻⁷ are routinely recommended by standard medical textbooks as the first step to evaluate adrenal insufficiency. To our knowledge no direct comparison of intravenous and intramuscular administration of ACTH has been published. We performed a randomized, double-blinded crossover study to determine whether the two routes of cosyntropin administration (IV or IM) were equivalent tests, and assessed the optimal timing for venous sampling.

Materials and Methods

Ten normal subjects (five males, five females) ranging in age from 17 to 42 years volunteered for this study. None had any evidence for hepatic, renal, or endocrine dysfunction, or were taking or had recently taken glucocorticoids. No women were taking oral contraceptives. After an overnight fast, venous blood was collected between 7:00 and 8:00 a.m. in heparinized tubes at 15 minutes and immediately prior to cosyntropin administration. Each subject received two injections. In a double-blinded fashion, subjects received 1 ml of normal saline either IV or IM, and 1 ml of normal saline containing cosyntropin 0.25 mg (Cortrosyn®, Organon Inc.,

West Orange, NJ) given IM or IV. The IM injection was given into the deltoid; the IV bolus was delivered over a 30-sec interval. Venous blood was collected by individual venipuncture at 30, 45, and 60 minutes following cosyntropin administration. The samples were centrifuged, blood separated, and plasma stored at -20° C until assayed. The following morning the procedure was repeated in a crossover fashion. Plasma cortisols were determined in duplicates within the same assay (Corti-Cote®, Becton-Dickinson, Orangeburg, NY). The results were evaluated with the Student's *t* test and with the Wilcoxon signed rank test.

Results

The mean baseline plasma cortisol (-15 and 0 time) for all subjects was 14.7 ± 3.0 (S.D.) $\mu\text{g/dl}$ on the first test day and 13.0 ± 3.0 (S.D.) $\mu\text{g/dl}$ on the following day. The plasma cortisol response to IV and IM administration is shown in the table. The mean baseline plasma cortisol was 12.6 ± 1.3 $\mu\text{g/dl}$ at the time of the of the IV cosyntropin study, which was not different from the baseline plasma cortisol of 14.5 ± 3.3 $\mu\text{g/dl}$ on the day of IM cosyntropin.

Following IV cosyntropin administration, plasma cortisol levels increased from a baseline level of $12.6 \mu\text{g/dl}$ to $20.7 \mu\text{g/dl}$ at 30 minutes, $22.6 \mu\text{g/dl}$ at 45 minutes, and $25.1 \mu\text{g/dl}$ at 60 minutes. There was a definite trend to increase with time. The maximal response was at 60 minutes. When the values at 30, 45, and 60 minutes were analyzed using Wilcoxon signed rank statistics, plasma cortisols at 60 minutes were greater than plasma cortisol levels at 45 minutes ($p=0.018$), and plasma cortisols at 45 minutes were greater than at 30 minutes ($p=0.018$). The average increase above baseline (Δ) was 8, 10, and $12.5 \mu\text{g/dl}$ at 30, 45, and 60 minutes respectively. The Δ s were also significantly different from each other (60-min value $>$ 45-min, $p=0.018$;

From the Department of Medicine, Duke University Medical Center, Durham 27710.

60-min > 30-min, $p=0.003$; 45-min > 30-min, $p=0.018$). Eight of the 10 subjects had the maximal response at 60 minutes; the other two had their greatest plasma cortisol at 30 and 45 minutes respectively.

Following IM cosyntropin administration, plasma cortisol levels increased from a baseline of 14.5 $\mu\text{g/dl}$ to 22.1 $\mu\text{g/dl}$ at 30 minutes, 24.2 $\mu\text{g/dl}$ at 45 minutes, and 25.5 $\mu\text{g/dl}$ at 60 minutes. Again, the maximal response was at 60 minutes. When the values at 30, 45, and 60 minutes were analyzed using Wilcoxon signed rank statistics, plasma cortisols at 60 minutes were greater than plasma cortisol levels at 45 minutes ($p=0.018$), and plasma cortisols at 45 minutes were greater than those at 30 minutes ($p=0.023$). The average increase above baseline (delta) was 7.6, 9.7, and 10.9 $\mu\text{g/dl}$ at 30, 45, and 60 minutes respectively. The deltas at each of these times were also significantly different from each other (60-min value > 45-min, $p=0.018$; 60-min > 30-min, $p=0.003$; 45-min > 30-min, $p=0.023$). Nine of the 10 subjects had the maximal response at 60 minutes; the other one at 45 minutes.

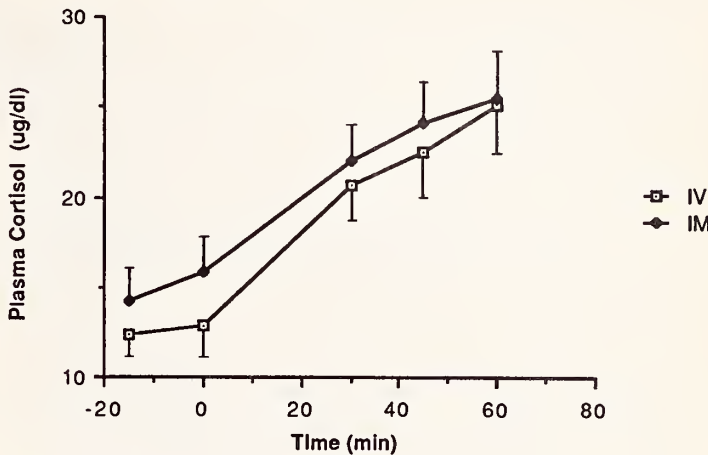
The mean plasma cortisol response to IV and IM administration of cosyntropin 0.25 mg is shown in the figure. When the responses of the two tests were compared, there was no significant difference between basal and stimulated values at any time interval.

Table 1. Plasma cortisol response to either a rapid intravenous bolus or intramuscular injection of cosyntropin (synthetic ACTH) 0.25 mg in normal adult subjects. Values are expressed as $\mu\text{g/dl}$.

Subject	Day	Route	Time (min)					Day	Route	Time (min)				
			-15	0	30	45	60			-15	0	30	45	60
1	2	IV	14.2	12.3	19.2	19.9	23.4	1	IM	13.2	13.1	20.3	21.4	23.4
2	1	IV	12.9	16	17	17.4	19.3	2	IM	13.3	14	18.5	20.3	21.1
3	1	IV	9.9	14.2	22.9	29.6	27.4	2	IM	12.8	13	27.6	29.9	30.9
4	1	IV	12.9	12.9	18.7	17.8	17.1	2	IM	12.9	15.1	21.1	18.4	22.3
5	2	IV	11.2	11.3	21.5	20.5	27.5	1	IM	13.4	14.9	23.7	23.1	24.7
6	2	IV	11.3	9.4	18.6	21.5	23.6	1	IM	13.2	12.1	18.6	21.5	22.7
7	2	IV	12.4	13	20.9	24.2	26.9	1	IM	16	19.3	23.1	30.5	28.7
8	1	IV	11.1	11.8	21	22.9	23.4	2	IM	9	8.9	16	20.5	21.1
9	2	IV	13.5	14.9	22.1	24.1	31.6	1	IM	20.6	20.3	25.3	27.5	28.4
10	2	IV	13.6	13.2	24.8	27.9	30.6	1	IM	17.9	17.7	27	29.1	31.3
MEAN		IV	12.3	12.9	20.7*	22.6*	25.1*		IM	14.2	14.8	22.1*	24.2*	25.5*
Std. Dev.			1.4	1.9	2.3	4	4.6			3.2	3.5	3.9	4.6	4
Std. Error			0.4	0.6	0.7	1.2	1.5			1	1.1	1.2	1.4	1.2

* $p<0.0001$ vs baseline (-15 and 0 time).

Figure 1. Plasma cortisol response to intravenous or intramuscular cosyntropin. Each point represents the mean plasma cortisol of ten normal subjects. The responses at 30, 45, and 60 minutes following cosyntropin administration are significantly greater than the baseline at -15 and 0 minutes ($p < 0.0001$ by Student's *t* test). The vertical bars indicate one standard deviation.



Discussion

Historically, patients suspected of primary or secondary adrenal insufficiency were assessed by the response to exogenous corticotropin. These tests carried a risk of allergic reaction and even death. With the advent of synthetic corticotropin 1-24 which contains the equivalent bioactivity of natural corticotropin, the danger of allergic reaction is nearly nil. Synthetic corticotropin screening tests for adrenocortical insufficiency have utilized various protocols of IV¹⁻⁴ and IM⁵⁻⁷ administration of this hormone. These short tests are particularly useful and advantageous since they reduce the cost and increase the convenience to the patient and physician. They can be performed as an outpatient study, whereas prolonged stimulation tests often require hospitalization. Thus, inpatient collection of urine and corticotropin administration over two to five days can be avoided.

Our study confirms what others have established. The question was whether one route of administration of cosyntropin was better than another for rapid screening of adrenal insufficiency. Both routes were efficacious, each producing a significant rise in plasma cortisol. A 7 $\mu\text{g/dl}$ increment has been considered as a normal response to cosyntropin.^{1,7} Two subjects (#2, #4) who received IV cosyntropin had less than a 7 $\mu\text{g/dl}$ rise at 30, 45 and 60 minutes, but rose to 7.4 $\mu\text{g/dl}$ and 8.3 $\mu\text{g/dl}$ following IM co-

syntropin at 60 minutes. Those two subjects, however, did achieve a value greater than 18 µg/dl, one at 30 minutes and the other at 60 minutes following IV cosyntropin. All patients receiving IM cosyntropin achieved a plasma cortisol greater than 21 µg/dl at 60 minutes.

Our preference would be IM injection, since it can be performed by nursing and office staff without requiring venous cannulation. In some hospital and clinic settings, a physician is required to administer IV medication. Blood can be collected by venipuncture at baseline and again 60 minutes following cosyntropin administration. An increase in plasma cortisol of 7 µg/dl or more above baseline or a stimulated plasma cortisol of 18 µg/dl should be expected in most subjects. Our studies show that in normal healthy volunteers, either route of cosyntropin administration produces similar results. Final acceptance of the intravenous versus intramuscular route as being equivalent awaits comparative tests in ill patients—e.g., cardiovascular problems and hypotension. □

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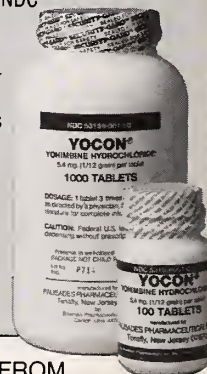
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Tuberculosis Control Migrant Study of 1988

J. Dale Simmons, M.D., Peggy Hull, R.N., Eldon Rogers, Migrant Health Technician, and Rocelle Hart, R.N.

The number of cases of active tuberculosis has been on the decrease for the past several years; in 1986 the incidence of new cases in Surry County, North Carolina was only five. In 1987, a high incidence of tuberculin positive seasonal migrant workers caused concern.

Helped by a grant from the Winston-Salem Foundation, we studied 461 Hispanic migrants residing in Surry County at some time during the period from June 1, 1988, to September 30, 1988. Our objectives were to: (1) determine the incidence of active tuberculosis cases; (2) treat those patients felt to be at risk for active tuberculosis and those at risk to spread the disease; and (3) determine if there was a relationship between those individuals who had been *Bacillus of Calmette and Guérin* (BCG) vaccinated and those individuals with a positive tuberculin reaction.

Of the 461 cases studied, 23 refused to participate in the study and three were lost to follow-up (table 1). A total of 435 were interviewed and tuberculin tested by the Mantoux Method (intermediate strength PPD) and tuberculin results were read.

In the interview process, each subject was queried as to previous BCG inoculation, age, sex, first year in the United States, number in the immediate family, educational level, etc. (see table 2, next page). The migrant workers or members of their families were interviewed at worksites and social gathering areas. Each was given a bilingual pamphlet describing tuberculosis, the BCG vaccine, and the reasons for this study. The process was reviewed with each migrant by an interpreter and/or public health nurse at the time of initial contact.

Tuberculin studies were placed on the initial visit by the nurse, then read on the follow-up visit. If the tuberculin showed 10 millimeters or more of induration 48 to 96 hours after implantation, the migrant was then brought into the health department for a 14 x 17 chest x-ray, arrangements for three sputum collections on consecutive days, and an evaluation by a state tuberculosis physician specialist.

At the clinic visit, each migrant was shown a Spanish-narrated slide presentation outlining the entire study process. Based on the specialist's assessment, certain clients were given Isoniazid (INH) and followed in our clinic.

There were 225 of our study group who had had BCG inoculations. History and scarring were used to determine this group. There were 135 or 31% of those studied who had positive tuberculin results. Migrants who had had previous BCG inoculation were found more likely to have a positive tuberculin skin test to a significant P value of 0.0005 (table 3, next page).

There were no sputums positive for acid fast bacilli. Three sputum samples were studied on each individual. There were no chest x-ray findings suggestive of tuberculosis on any of the tuberculin positive individuals. Seventy-one were prescribed INH as a precautionary measure. All positive tuberculin results were evaluated by our state tuberculosis consultant.

Table 1
Total Contacts

Total Contacts and Interviews	461
Refusals	23
Lost to Follow-Up	3
Study Group (Net)	435

Dr. Simmons is Health Director, Surry County Health Department, P.O. Box 1062, 118 Hamby Road, Dobson 27017.

Table 2
Study Group Profile

Study Group	435
Males	389
Females	46
First visit to United States 1985 or Later	185
Age 10 or Less	29
Age 11-19	43

Table 3
Study Group Results

Study Group	435
Positive Tuberculin	135 (31%)
BCG Inoculated	225 (52%)
Positive Tuberculin and Previous BCG Inoculation	87 (20%)

Conclusions

In our group of 435 Hispanic migrants studied in Surry County during 1988, 135 were tuberculin positive—an incidence of 31%, compared with 17% positives in our general clinic testing of 1,065 individuals in 1986. The 1986 general clinic group consisted of 1,062 Native Americans and three Hispanics.

We found that the individual with a previous BCG vaccine was more likely to have a positive tuberculin. There were 138 individuals who had had a previous BCG vaccine but did not have a positive tuberculin skin test. We did not feel that our sample of Hispanic migrants posed a significant threat of spread of tuberculosis infection to the citizens of Surry County based on the results of this study. □

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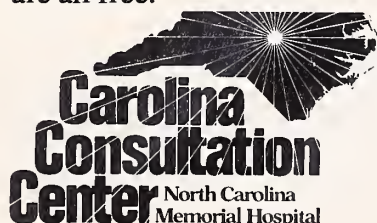
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He Is Happy Whom the Muses Love

Micronase (Sulfonylurea) Overdose

Ronald B. Mack, M.D.

The Ancient Greeks were so well organized—they seem to have had a god for everything. Part of this proliferation of deities was due to the sexual appetite of Zeus, who was the head honcho of all the gods. One of his paramours was Mnemosyne (memory), who gave birth to the Muses, the patronesses of literature and the arts.¹⁻³ Anyone who performs for the public (yes, writing is a “performance” of sorts) has asked the Muses for help on occasion. There were nine Muses, for history, dance, comedy, poetry, and so on. Allegorically they represented the combining of memory and divine help to produce inspiration. Believe me when I say that I summon my Muse very frequently indeed. Her name is Melpomene, the Muse of Tragedy, for most of the things I write about are unhappy events. I am summoning her now, as we speak, to help me write this piece about Micronase overdose.

We recently had a pediatric patient in our emergency room who ingested some oral hypoglycemic tablets belonging to her grandmother. It has been well established that one-third of all accidental ingestions of prescription medications, by preschool children, occur in the home of the grandparents.⁴ Grandma in this case was suffering from Type II maturity onset diabetes mellitus and was not insulin dependent. The medication prescribed for her was an oral hypoglycemic agent that is one of a class of drugs known as the sulfonylureas. This group of medications includes tolbutamide, acetohexamide, chlorpropamide, and the two recent members, glyburide and glipizide.⁵ Our little patient swallowed Micronase tablets—a glyburide hypoglycemic agent that is a second generation sulfonylurea.

In 1942, in the early part of World War II, a researcher named Janbon determined that a sulfonamide could induce hypoglycemia.⁵ His colleague, Loribatières, discovered that

hypoglycemia could not be induced with a sulfonamide if the experimental animal's pancreas had been removed before the drug was given. Glyburide apparently acts on functioning beta cells in the pancreas to produce insulin and thereby lowers the patient's blood glucose. Also, this type of agent increases the conversion of glucose to glycogen and may very well potentiate the hypoglycemic effects of insulin by increasing the binding of insulin and/or by increasing the number of receptors.⁶

Micronase (glyburide) is absorbed relatively quickly and peak plasma concentrations are found at four hours post ingestion. This drug is extensively bound to protein—99%. The volume of distribution (V_D) is very low—0.13 to 0.57 liters/kilogram.⁷ The duration of action can be as long as 16 to 24 hours and the half-life ($T_{1/2}$) is 10 hours.⁶ It is prudent when managing a patient with a sulfonylurea overdose to look closely at the type of agent, as the absorption and half-life characteristics vary widely. Sulfonylureas, as a group, are extensively metabolized by the liver, and the metabolites are not generally active in producing hypoglycemia.

The toxic consequences of a sulfonylurea overdose with a medication such as Micronase can be devastating, and present a clinical picture evocative of the patient from Hell. The most important clinical adversities presenting to the physician in patients ingesting excessive amounts of sulfonylureas are coma or noticeably altered mental status.⁷ The unfortunate victim's pupils may be normal or fixed and dilated. Patients experiencing the hypoglycemia induced by the drug may complain of dizziness, extreme weakness, confusion, light headedness and paresthesias. Observation of the patient at this time may reveal trembling, slurred speech or extreme combativeness. Irritability, syncope and delirium can also occur. A child intoxicated with these compounds can have screaming episodes that appear bizarre. Early on patients often complain of nausea, vomiting and epigastric pain.⁶ Diarrhea is usually not a factor in this poisoning. Seizures have been reported in 35% in some series and seem to correlate with the hypoglycemia.⁶ Coma has been reported in 70% of overdose patients and is also likely to be secondary to the hypoglycemia.

From the Department of Pediatrics, Bowman Gray School of Medicine, Wake Forest University, 300 S. Hawthorne Dr., Winston-Salem 27103.

Without an adequate history to suggest hypoglycemia, the neurological abnormalities can simulate cerebrovascular accidents or space occupying lesions in the head or any number of central nervous system lesions that can cause demonstrable abnormal deficits on physical examination of the central and peripheral nerve system. These findings include bilateral Babinski reflexes with extensor plantar responses, absent or increased deep tendon reflexes, bilateral ankle clonus, mono or hemiplegia, athetosis, decerebrate posturing, ataxia, and motor aphasia to name a few.^{6,7} When examining patients poisoned by this group of potential toxins you may find that the skin is quite warm and diaphoretic, that the patient is dyspneic or even apneic and can exhibit hypotension, tachycardia or even cardiac arrest. The vagaries of abnormal symptoms and signs induced by hypoglycemia from any etiology should induce the physician confronted by such clinical findings to freely order blood glucose levels.

Other oral hypoglycemic agents in the sulfonylurea group that can cause the same clinical picture are: acetohexamide (Dymelor), chlorpropamide (Diabinese), glipizide (Glucotrol), tolazamide (Tolinase), and tolbutamide (Orinase).⁵ Whereas hypoglycemia is what you would expect these medications to do in overdose situations, the kinetics of these various agents differ—e.g., onset, duration, etc. To fine-tune the management in a specific case of overdose from these products you need to pay attention to the individual characteristics of the drug involved.

There are many other drugs that can produce hypoglycemia in an overdose situation and you must think of them when the specific agent is not immediately known. Examples include ethanol from any cause, as from any alcohol-containing beverage, mouth wash, cologne, perfume, toilet water (no, not that kind, Tidy-Bowl Breath). Ethanol ingestion may be the most common cause of acquired hypoglycemia in preschool children. Consider also the ingestion of acetone, beta blockers, clonidine, halperidol, MAO inhibitors, organophosphates, quinine, salicylates, theophylline, thiazide diuretics, and verapamil, to name a few. If you are very suspicious and suspect foul play try to ascertain if the patient accidentally or on purpose injected insulin into his or her body—it happens.

To diagnose a patient acutely poisoned by an oral hypoglycemic agent, such as Micronase, you need a good history and physical examination and an accurate serum glucose level. Blood sugar levels above 60 mg/dl⁶ should not cause concern; levels between 40 and 60 mg/dl are consistent with mild to moderate overdose; but levels below 40 mg/dl portend more serious management problems. Certain patients who ingest these pills for non-diabetic purposes are at greater risk and may suffer prolonged hypoglycemic reactions from relatively small doses: patients with defects in sulfonylurea metabolism, excessive insulin secretion, liver damage, renal damage, diarrhea, contemporaneous ingestion of ethanol, salicylates, etc., previous cerebrovascular or cardiovascular problems, poor nutrition, and geriatric

patients.⁷ Although it is possible, in some centers, to obtain plasma assays of the individual oral hypoglycemic agent that your patient might have taken, this is not going to put you where you want to be. Proper assessment must include serial blood glucose measurement and frequent observation of the patient. For example, most of us are aware that on paper a patient may have a blood sugar value below 40 mg/dl and remain asymptomatic, or be very obtunded with a relatively normal blood glucose level. If you are not sure about the etiology of the hypoglycemia, obtaining salicylate and ethanol levels would appear to be warranted.

The major management problems in patients who overdose on oral hypoglycemic agents, such as the sulfonylureas, involve prolonged hypoglycemia and coma. If the patient was seen very early after ingestion (within 30 minutes), and if the patient was not obtunded or seizing, gastric emptying with ipecac can be attempted. This can be followed by activated charcoal and then a saline cathartic or sorbitol. Intravenous glucose should be the major weapon in this poisoning. In treating adults with an oral hypoglycemic overdose, the administration of 25 grams glucose solution (50 ml of 50% dextrose) should correct the acute problems. Children should receive 0.5 to 1.0 gram/kg IV of D25W. Children older than three years could be given D50W, at 1 to 2 ml/kg/dose. Continuous glucose infusions are recommended for glyburide (Micronase) overdose, as intermittent boli of glucose can have an additive effect on insulin secretion and produce a rapid decrease in blood sugar.⁸ The intravenous glucose therapy should not be terminated suddenly. Be careful not to produce hypervolemia in your patient by paying attention to the volume infused. Concentrated glucose solutions are very irritating to the veins and lower concentrations of glucose solutions can require large volumes; a central line should be considered.

There are other therapeutic modalities that can be resorted to; however, some are controversial. If glucose therapy is not working for your patient, glucagon hydrochloride can be given in an attempt to increase the blood glucose level. It should follow the giving of glucose and it works best if the patient has adequate glycogen stores on board. Infants generally do not have adequate glycogen stores.⁹ Glucagon has a short half-life and can stimulate insulin release—not necessarily an ideal product for this poisoning, hence the controversy. Some authorities would administer *glucocorticoids*¹⁰ if glucose infusions fail to resolve the hypoglycemia. These steroids seem to elevate blood glucose, inhibit glucose utilization and indirectly inhibit glycolysis, thereby increasing gluconeogenesis. Intravenous glucose remains the best game in town for initial management for this unusual poisoning. *Diazoxide*⁶ has been used in patients with severe hypoglycemia caused by oral hypoglycemic agents because this drug can block insulin release as well as decrease the cellular uptake of the glucose. In spite of the fact that sulfonylureas as a group have very low volumes of distribution, they are very highly protein bound, and extracorporeal removal does not seem to be a viable option at this time. By the way, our

little patient did well and is alleged to be sweeter than ever.

Everyone should have a favorite Ancient Greek or Roman poet such as Horace, or Ovid, or Homer. (You mean you don't have one? For shame!!) One of my favorites is Hesiod, who lived circa 800 B.C. and who alleged that the Muses ordered him to write poetry. He loved those nine women (what a dude!!) and said "For though a man has sorrow and grief in his soul, yet when the servant of the Muses sings, at once he forgets his dark thoughts and remembers not his troubles. Such is the holy gift of the Muses to men!!" It works for me. □

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Demographics of a Laser Program in a Tertiary Medical Center

Dennis R. Sinar, M.D.

Background

Medical use of lasers dates to the mid-1960s, but the instruments have been widely available for only the past five to seven years. The term "laser" is an almost instantly identifiable word to the American public. In the mind of the public, use of the laser in medical applications implies the use of a new surgical tool; a highly technical modality which may produce better, more effective, or less invasive surgical results. Surgical lasers are widely used in many specialties.¹ Introduction of such new technologies by existing medical staff generally occurs as a physician expresses an interest in the technology by attending a training course in laser use in his or her specialty. The physician generally applies for an extension of clinical privileges to include laser privileges and begins to use the new technology in appropriate patients.

There have been no publications outlining the development of a laser program in a hospital and the frequency of use of the laser by the medical staff. Objective data about potential use of the technology would be valuable to physicians and hospital administrators as they face increasing pressure to purchase new technology in an increasingly competitive marketplace.

The intent of this study is to retrospectively examine the pattern of surgical laser use at Pitt County Memorial Hospital beginning with the early point of a multi-specialty laser program.

Methods

All clinical uses of a surgical laser in our hospital require completion of a laser log by nursing staff which lists the physician, patient demographics, and laser type. We performed a retrospective analysis of these laser logs to determine the frequency of use and specifics of use of the three

available types of laser (CO₂, argon and Nd:YAG). A database was constructed from the laser logs with fields for the physician, specialty, diagnosis, type of laser, peak wattage used during the case, and comments (problems encountered with the machinery/personnel during the case, if any).

The medical staff support office maintains a listing of all physicians credentialed in the use of any of the hospital lasers for inpatient procedures. That list was used to determine the percentage of physicians credentialed in the procedure, and was compared with the laser log to determine the number of physicians who actually performed laser cases during the period of the study. For accuracy, a 24-month period from September 1986 to September 1988 was chosen because of the availability of a standardized laser log. Prior to September 1986, a standardized laser log was not available and the number of cases was small.

Data were analyzed by descriptive statistics.

Results

Starting a laser program

Pitt County Memorial Hospital (PCMH) is a tertiary referral center in eastern North Carolina with 520 beds and 260 to 296 active staff physicians during the time of this study. A laser committee was established with representatives from hospital administration, safety, operating room, and physicians in specialties interested in using the lasers. The first meeting of this committee was in July 1985, prior to the use of any laser.

A CO₂ laser was purchased by the hospital in May 1985. All operating rooms were acceptable for CO₂ laser cases. A Nd:YAG laser acquired on a "per use" lease agreement was installed for the first case in May 1986. The installation of the Nd:YAG laser required significant alterations in power and water connections to the three operating rooms designated for its use. This type of laser required cooling water at 6 liters/min minimum; 25°C maximum. PCMH used ground water supplies for this cooling function. In the summer months, the ground water temperature was not low enough to properly

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cool the laser, producing shutdown of the laser. This problem required installation of a separate chilling unit to the three operating rooms equipped for Nd:YAG laser use. Nursing staff were trained on the safe use of these lasers both at in-house, company-sponsored training sessions and at outside laser training facilities. A second YAG laser was purchased in May 1987 to replace the first. An argon laser for ophthalmologic use was purchased in July 1986.

Laser use information

There are 78 physicians on the active medical staff in specialties which have widely used laser applications. Records of the laser committee were reviewed to determine the number of physicians approved for laser privileges during the study and to determine if laser use increased in the hospital after the introduction of the three types of laser. At the start of the study period, 18 physicians in eight specialties had been credentialed for laser use by the hospital. During the time of the study, 19 additional physicians and two additional specialties were credentialed to use the lasers.

Six physicians were credentialed in the use of both YAG and CO₂ lasers during the study period. Only ophthalmologists were credentialed in the intraoperative use of the argon laser. The distribution of physicians using the lasers and other physicians on the active medical staff not using lasers is shown in table 1 by specialty. Four hundred thirty-two cases were performed using one of the three types of laser during the study period. The total number of OR cases performed during the two-year study period was 18,835 (8,888, 1986-1987; 9,947, 1987-1988). The breakdown by specialty and laser type is shown in figure 1.

Table 1
Clinical use of lasers by specialty

Specialty		Laser users	Non-laser users
Cardiac Surgery	(CS)	2	2
General Surgery	(GS)	3	9
Gastroenterology	(GI)	5	1
Neurosurgery	(NS)	2	2
Ophthalmology	(OP)	2	0
Otolaryngology	(OT)	3	0
Plastic Surgery			
/Dermatology	(PS)	1	6
Pulmonary Medicine	(PM)	3	2
Urologic Surgery	(US)	2	2
Gynecologic Surgery	(GS)	12	19
Total		35	43

Note that all of the physicians credentialed to use a type of laser have used the machine, but four physicians have used the machine less than two times during the study period.

Figure 2 is a graphic display of the number of cases of laser use by physician. Note that there is a pattern of use in that some physicians find a therapeutic niche for the technology; this may be partly due to referral specifically for laser surgery, but definitely indicates a laser interest.

Specifics of laser technique

Figure 3 presents the distribution of the highest wattage used during a case by laser type and by specialty. The intraoperative ophthalmic laser is used at power settings of <1 watt and is not included. This information may be highly variable among hospitals depending on the patient population and individual physician technique. We were unable to determine a pattern of power use among physicians performing the highest number of cases; that is, a shift from higher power to lower power with experience or the reverse pattern. The question of laser wattage required for various applications is a difficult one because different specialties have different power requirements to produce different tissue effects.

Safety

All lasers have been used safely since installation. Review of the comments section of the laser logs revealed one incident of a physician accidentally burning the tip of an index finger with the CO₂ laser during a procedure. The remaining cases were completed without safety problems to patients or personnel.

Laser readiness

All machines are covered by service contracts. Review of the laser logs disclosed the following problems with a specific type of laser:

CO₂:
incidents with laser column stiffness 8
incidents with telescope arm 4
indicator light malfunction 1
mirrors out of alignment 1
repeat mode malfunction 2

Nd:YAG:
error messages after self-test 2
loose front panel-laser malfunction 1
printer problem 2
power meter failure 2
calibration problem 2

None of the above problems produced patient/staff safety concerns, and each was generally resolved within a suitable time frame to allow the scheduled cases to proceed.

Laser Use By Specialty

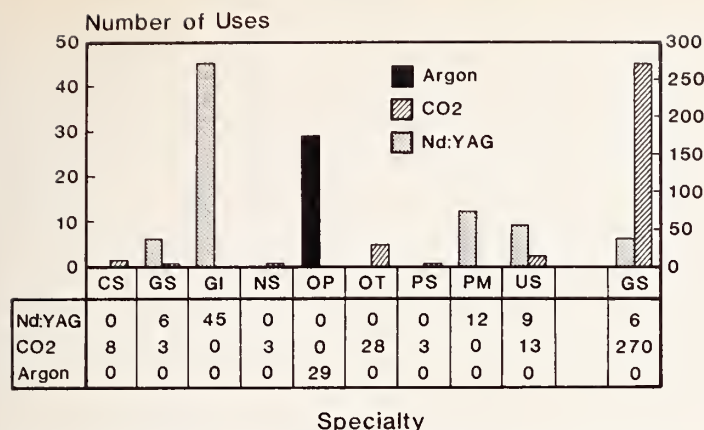


Figure 1. Distribution of laser use by specialty and by laser type. Note the dual scale and the greatly increased use of the CO₂ laser in gynecologic surgery.

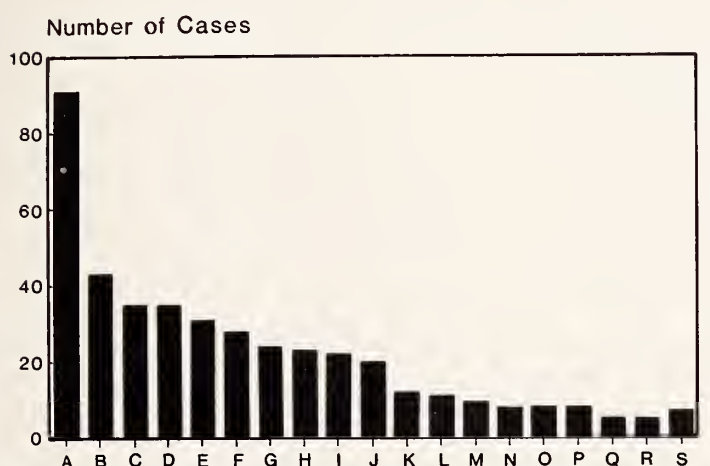


Figure 2. Rank order histogram showing the number of cases of laser use by individual surgeon. Surgeon "S" is a compilation of all physicians who used the laser less than two times each during the study period.

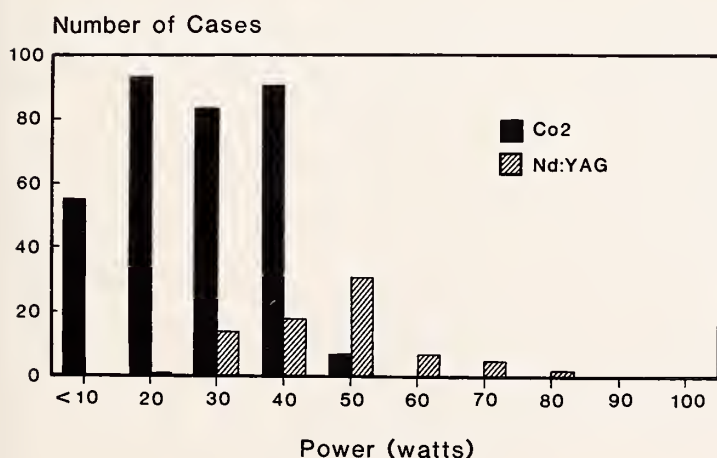


Figure 3. Laser power used during cases shown by laser type. Note that the CO₂ laser was never used at power settings greater than 50 watts in this study while the Nd:YAG laser was used at power settings above 50 watts in a significant number of cases. This information may be highly variable among specialties and among individual physicians at other institutions, and may depend on individual preference/technique.

Discussion

Lasers are surgical tools that can facilitate operative technique, decrease operative time, and produce effective therapeutic results in a variety of specialties. As with any procedure or piece of equipment, a physician must determine the effectiveness of laser techniques in his or her own patient population. Comparative studies of laser treatment and other treatment modalities are available in a variety of specialties,²⁻⁷ and additional comparisons are underway. There is no available study to support the claim that use of a laser as a surgical instrument necessarily produces a better procedure or a better result. Laser technology has been shown to be a more cost effective alternative to conventional surgical techniques.

It is likely that the use of laser technology will increase as new and more diverse applications are introduced into medical practice. Possible applications which appear to have a promising future include "hot tip" laser angioplasty to open occluded peripheral or cardiac vessels, "tissue" welding by low power lasers to produce stronger incisions and facilitate healing, photodynamic therapy with the injection/application of a photoactive compound to be taken up by tumors with activation of the compound by monochromatic laser light, and the possible use of low power laser light to produce biostimulation of cells to modulate the inflammatory response. The acoustic properties of lasers can be used to fragment gallstones or urinary stones, and excimer or "cold knife" lasers may produce more controlled surgical incisions. These applications, in addition to the standard surgical applications available in a variety of specialties today, present a bright future for laser use in medicine.

Hospital administrators are often faced with the difficult question of which type of laser, if any, to consider for their hospital. With the relatively high cost of equipment, training, and supplies, some may question whether laser technology should be utilized in a primary, secondary, or tertiary hospital. This study presents evidence of a growth in laser use in a variety of specialties. The growth extends across several physicians in each specialty with the highest frequency of use in gynecologic surgery. In our experience, cases were never done above 50 watts with the CO₂ laser, but a sizable number of cases were done above 50 watts with the Nd:YAG laser. It is hoped that this study will be helpful for others planning a laser program, by defining the laser experience of one hospital in North Carolina. □

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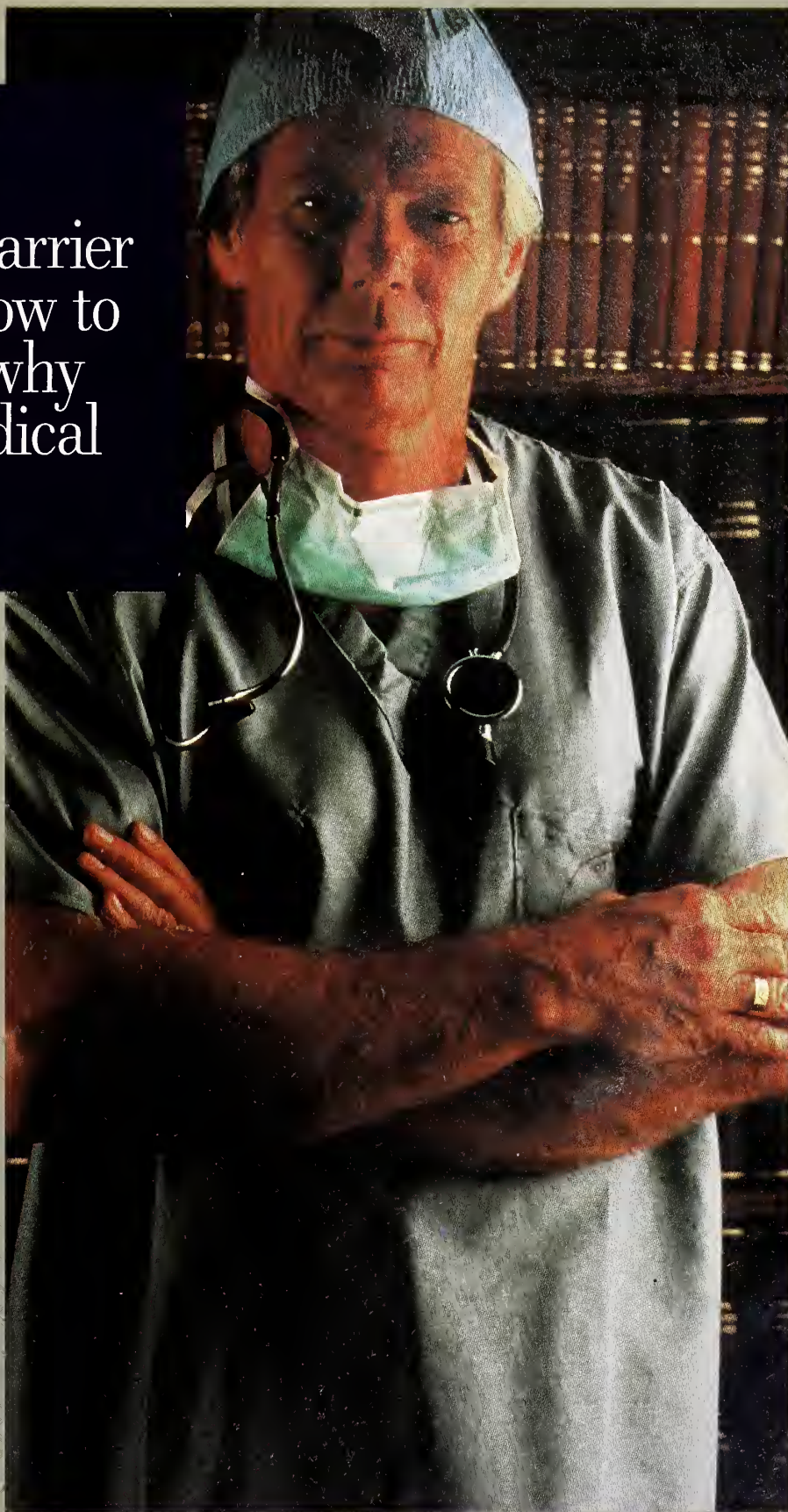
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Helicopter Kids

Nicky L. Pipkin, M.D.

Dr. Pipkin is in his sixth year of surgical training. He lives in the residents' apartments, where the children's play area is a stone's throw from the helicopter pad.

Yes, it was a very exciting thing, at first. To see the green bird float down from the sky—amazingly, effortlessly—but with a deafening whirr commanding the attention of not only the kids but the adults also. The common response in the early days was for the group of six to eight children, varying in age from eighteen months to four years, to run excitedly to that side of the apartment building where the landing could be cheered with shrill, happy voices and much jumping and dancing. Later, the landings became more routine and more and more frequent. And the children were captive participants in an era of change.

Did the kids reflect only the attitudes of their young physician parents, or did they show their own? I believe each manifested a unique combination of the two. Some continued to applaud each touchdown; others accepted them matter-of-factly. The children of the surgeons grew less enthusiastic with time. Little hands cupped fragile pink ears. Play stopped until quiet resumed. Short, sweet little arms encircled Dad's neck—*tightly*. A fatherly reassurance of safety was choked back when the true reason for the trembling embrace was realized. "Daddy, why do you always leave me when that thing comes?"

Despite its importance, despite the lives and limbs which survived only because *it* came, the thing permeated our tiny apartment overlooking its nest in a manner bordering on damnable. The exhaustion allowing me to sleep did not

help my wife and daughter to get their rest at night's midportion. Resentment and irritability were the inevitable result.

At supper, we were informed a full thirty seconds before our older ears confirmed the approach. "It's coming." I hastened my ingestion at the daughterly warning. There was no predicting when the next meal would come.

On another occasion, preparing to leave, I headed for the window to survey the incoming. The three-year old already there told me, "Don't worry, Dad. This one's not for you. Your patients are always lying down. This one's sitting up." My memory spun and surprised me by not bringing up any automobile crashes flown in sitting erect. Heart patients sit up. Trauma patients do not.

Months and years have passed. The time approaches for a new beach to storm. Perhaps we will not be on the front lines next time. We contemplate our tour of duty here and its many aspects. Hopefully, we are better persons, better doctors. Hopefully, we have tried to maintain a growing relationship with a spouse who must constantly compete with the jealous lover, medicine. We have also tried to give some insight to our kids about what all this really means. To tell them that Dad and Mom really do love them more than anything in the whole world. Any *thing*. To tell them why we want to be doctors, even when it is hard on us and on our families.

I believe they understand more than we think they do. □

From the Department of General Surgery, Charlotte Memorial Hospital Medical Center, P.O. Box 32861, Charlotte, NC 28232.

Drawing by Ernest Craige, M.D.



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VOLUME 50 / NUMBER 6 / JUNE 1989

Vision

PROTECTING YOUR EYES AND PRESERVING YOUR VISION

Edward McG. Hedgpeth, Jr., MD,
James L. Kesler, MD and Martin J. Kreshon, MD

Q What are the best glasses to wear for safety and/or sports?

A Plastic is the best safety lens because tempered glass lenses that get scratched are ruined. If you want really high quality safety lenses for athletics then you want ones made of polycarbonate. Those are like the safety lenses worn by basketball pros like Kareem Abdul-Jabbar and James Worthy; both the lenses and the frames are made of polycarbonate. Very near-sighted people who need thick glass lenses can improve their appearance and reduce the weight of their glasses by getting plastic lenses, which can be made thinner than tempered glass lenses.

From the North Carolina Medical Society's Eye Care & Eye Bank Committee: Dr. Hedgpeth, 1110 West Main Street, Durham 27701, Dr. Kesler, 1120 Medical Center Drive, Wilmington 28401 and Dr. Kreshon, 1600 East Third Street, Charlotte 28204.

Q What is the best way to use glaucoma drops or any other eye drops?

A The best way to be sure your eye soaks up as much of the eye drop as possible is to close your eyes gently after inserting the drops and occlude your puncta (these are the tear duct holes in your upper and lower eyelids near the bridge of your nose) for about five minutes. Then most of the medication stays in the eye where it belongs and less of it passes through the puncta into the lining of the nose. What does get to the nose is very rapidly absorbed through the lining of the nasal passages into the rest of the body where it will do the eyes no good. Some ocular medications have systemic side effects that you will avoid if you take your drops, close your eyes, occlude your puncta and wait five minutes.

Q Are there any over-the-counter eye medications to avoid?

A You should be wary of any that contain thimerosal, which is a preservative found in some saline solutions

for contact lenses and in some artificial tears. Over the long haul, thimerosal can become very irritating to the eyes.

Q Should wounds to the eye be treated in the same way as wounds anywhere else?

A No. You should never put pressure on any penetrating injury to the eye. Everywhere else that you get hurt you should apply pressure. Cover a penetrating eye wound gently, put a shield or glasses on, and go quickly to your ophthalmologist to have it attended to.

Q What's the best way to get an eyelash or a foreign body out of my eye?

A The natural reaction is to rub it, but don't; rubbing it just scratches it all around. If it's behind your lower lid you should be able to see it and remove it easily. If it's behind your upper eyelid, pull the lid out over your lower lid. The speck will move down to where you can see it and remove it.

Q What are the best contact lenses: the kind you take out daily, the kind you take out only once a month, or the new disposable lenses?

A The best contact lenses are the ones you put in and remove daily.

All contact lenses reduce the amount of oxygen that gets through to your eyes, and the eyes need oxygen to remain healthy. That's why there is a break-in period for patients just beginning to wear contact lenses so that their eyes will have an opportunity to adjust gradually to living under reduced oxygen tension. So the first choice in contact lenses is a daily wear lens that you take out and give yourself a rest from.

Extended-wear lenses are gas permeable, which means that oxygen can be transmitted through them. But they lose their gas permeability over time, as well as the oxygen transmission that goes with it, and as that happens the eyes receive less and less oxygen which makes them less resistant to disease. Then conjunctivitis or a corneal ulcer or some ailment can come on in a matter of hours rather than over the course of several days and be much more difficult to treat or cure.

Disposable lenses are essentially extended-wear lenses with built-in obsolescence so that you throw them away before they lose their gas permeability. Unfortunately no one really knows when lenses start losing their gas permeability. It's different in each patient depending on how much mucoid debris and protein debris there is in the tear film that bonds to the lens.

Disposable lenses are a distant second choice after daily wear lenses, but they're better than the once-a-month extended-wear lenses. The eye needs a rest from the oxygen deprivation that contact lenses cause, and the more frequent the rest the better.

Extended-wear lenses may be appropriate for some people, for example an elderly person with severe arthritis who finds it impossible to insert and remove lenses every day.

Q How well do I need to see to get a driver's license in North Carolina?

A If you can see as well as 20/40 in each eye uncorrected or best corrected you will probably pass the vision part of your driver's test without any problem. If you do have a problem passing this part of the driver's test, you can take the card that will be given to you at the driver's license bureau to your ophthalmologist and have a detailed examination including a visual field test which is a way to measure your peripheral vision. If you are found to have vision as good as 20/50 bilaterally, you can still get an unrestricted driver's license. You can get a restricted driver's license with 20/100 vision.

Some visual conditions take away your ability to drive, even if you have 20/20 or 20/30 vision. The two most common are retinitis pigmentosa (also known as tunnel vision) and glaucoma with substantial loss of peripheral vision.

Q Does it mean anything if someone's vision seems to get much worse very quickly?

A There could be several reasons for that happening and it is a signal to see your ophthalmologist as soon as possible. A school teacher who came in to see an ophthalmologist recently complained that in just the last two weeks she couldn't see the children in the back row and she couldn't see the blackboard from the back of the room. After examining her eyes he sent her to the lab to have her blood sugar tested. It was 450, way above normal. She was diabetic and didn't know it. Her loss of vision was her first symptom. Her ophthalmologist sent her to her regular physician for further testing and treatment of her diabetes.

Q What is "second sight"?

A "Second sight" is something that happens to elderly adults who've been wearing reading glasses for some years and find that they don't need them anymore. What's actually happening is that they're forming nuclear sclerosing cataracts, the most common kind of cataracts, which can have

this effect early on in their formation. Older people who have "second sight" should make an appointment to see their ophthalmologist when their up-close vision starts to get fuzzy.

Q If a baby is born with brown eyes, will its eyes ever turn blue?

A No, but a blue-eyed baby's eyes might turn brown. Eye color is determined by the amount of melanin or pigment in the iris of the eye; the more melanin, the darker the eye. The amount of melanin can increase, making a blue or hazel-eyed baby become a brown-eyed baby, but it cannot decrease, making brown eyes blue.

Q If someone who needs glasses doesn't wear them, will it do any harm?

A Actually it won't as long as this isn't someone with strabismus (crossed-eyes or cocked-eyes). Vision isn't harmed nor are optics altered if someone who needs glasses refuses to wear them, and this sometimes happens as youngsters reach their early teens and become very concerned about their appearance. They won't be able to see as well without their glasses, of course, and they should be encouraged to wear them, but they will not do any real harm to their vision.

Q We hear a lot about the damage ultraviolet light can do to the body. Can it harm the eyes?

A For years ophthalmologists have wondered if ultraviolet light could be linked to cataracts in the same way that it seems to be linked to skin damage. Now there is good reason to think that some ultraviolet light may pass through the cornea and be absorbed by the lens in the eye. Over time, damage may occur to the lens, similar to the damage that happens to the skin from prolonged exposure to sunlight. Eventually, the proteins within the eye degenerate and no longer remain clear. That cloudy lens is defined as a cataract.

A very recent study of fishermen on the Chesapeake Bay showed that those who were exposed to a lot of sunlight had a higher incidence of cataracts than those who protected themselves with hats or sunglasses. The study suggested that it would be helpful to protect the eyes from ultraviolet light by shielding them, by wearing a hat and/or sunglasses to screen out ultraviolet light. This may be one very important way to avoid developing cataracts in later years.

Q I know opticians fit and sell eyeglasses, but I'm confused between ophthalmologists and optometrists. Who does what?

A An ophthalmologist is a medical doctor who specializes in the visual system. Ophthalmology comes from the Greek word for *eyes*. Ophthalmologists spend four years in medical school after graduating from college and then spend another five years in training that concentrates on the eye and its diseases. They provide all phases of eye care including prescribing corrective eyeglasses, prescribing and fitting contact lenses, treating diseases of the eyes, prescribing medicines and performing eye surgery.

Optometry comes from the Greek word for *visible* and is defined in the dictionary as the profession of examining, measuring and treating certain visual defects by means of corrective lenses or other methods that do not require license as a physician. Optometrists spend four years in optometry school after two to four years of college. In North Carolina, optometrists cannot prescribe medications without collaborating with an ophthalmologist or other licensed physician except for drugs that they may use during an eye examination. Optometrists cannot perform surgery.

Q When is the best time to have my children's eyes examined?

A Parents, teachers and daycare workers play a very important role in children's eye health. Eye problems affect one out of 30 children between the ages of three and five as well as one out of every four school-aged children. Nearly all of these eye disorders can be corrected or cured if they are detected early.

Anytime that you see a cat's-eye reflex (the pupil looks white) or anytime you think that a child looks cross-eyed or cockeyed, you should have him or her examined. If your child does a lot of eye rubbing, shuts or covers one eye, or blinks more than usual, mention it to your child's doctor or make an appointment with your ophthalmologist.

Otherwise, if your children's eyes look normal, the ideal time for a first examination from an ophthalmologist's standpoint is around age three. At three, they're small enough to fix amblyopia if it's found and old enough to cooperate a little bit. What is most important in children this young is to make sure they see **equally well** out of each eye; their vision doesn't have to be 20/20 or even 20/30 as long as it's symmetrical.

Q Where can I get help for an eye problem if I am elderly and have limited means?

A If you are over 65 years old, have a problem with one or both eyes, and do not have an ophthalmologist, the National Eye Care Project may be just what you need. It is an endeavor of the American Academy of Ophthalmology, and its purposes are to provide needy older people who have no source of care with quality eye care and to make medical eye care available to elderly people who may have lost contact with an ophthalmologist.

Elderly people with a visual problem and no ophthalmologist can call the toll-free Helpline number to get answers to their questions about eye diseases and/or a referral to a nearby ophthalmologist who participates in the Project. That physician will see the patient for an eye examination at no charge to the patient, although a bill will be sent to Medicare or whatever other insurer the patient might have, if any. Physicians also donate their services if surgery is necessary, again accepting what the insurer pays as payment in full.

Over 7,000 ophthalmologists nationwide are part of the National Eye Care Project. In North Carolina alone, more than 245 ophthalmologists are participating Project physicians. Since the Project began in 1986, Helpline has received over 230,000 telephone calls and offered over 151,000 referrals. More than 86,000 patients have been seen by volunteer ophthalmologists. For more than 25,000 of them, this was their first visit ever to an ophthalmologist.

A number of serious eye diseases and other visual problems were found in the first 86,000 patients screened by ophthalmologists taking part in the National Eye Care Project. Almost 40,000 patients had cataracts and over 17,000 needed corrective lenses. Nearly 4,000 had glaucoma and over 8,000 showed signs of macular degeneration. Almost 30,000 patients said that they had had their eye problem for over two years.

Some things are not covered under the National Eye Care Project: eyeglasses and corrective lenses, prescription drugs, hospital charges other than the surgeon's fee and, sometimes, the charges of a specialist the ophthalmologist may refer you to. Only ophthalmologists who are part of the Project agree to waive their fees; if one who has joined the Project feels it is necessary to refer you to a specialist who has not, you will be responsible for the specialist's fee.

The Helpline telephone number is 1-800-222-EYES or 1-800-222-3937. □

IN UPCOMING ISSUES

July, August, September:
DISEASES OF THE SKIN

October, November, December:
**SEXUALLY TRANSMITTED
DISEASES, INCLUDING AIDS**

1990:
**ARTHRITIS AND
JOINT DISEASES
HEARING LOSS
IMMUNIZATIONS
LONG-TERM CARE**

Family Support in North Carolina

Michael C. Sharp, M.D. Rose Forrest, Nancy Reichle, Ph.D.,
and MaryAnne Mastrianni, M.P.H., M. Ed.

Parents of Special Children

Being a parent is a complicated challenge. The responsibility becomes especially difficult when the child is born prematurely or has serious illness, particularly in early childhood with possible damaging effects on development. Parents who have children with chronic illness or developmental disabilities also face extra challenges.

Parents with such children report complex and mixed emotional reactions. At the time of diagnosis there may be sadness, anger, hopelessness, guilt, loneliness, a sense of loss or failure, and grief. These feelings recur over time, becoming alternately intense and subdued as children grow, families change, and transitions are made from one source of help to another. The successful negotiation of these emotional reactions seems to be a prerequisite to successfully adapting to the special needs of such children. With time and support these parents achieve a sense of real joy and satisfaction with their own achievements and those of their children.

One source of support is a network of professionals who are trained to help these families; their assistance and expertise can help families adapt to these challenges and improve the functional outcome for both the parents and the children. The network, however, is complex and may be difficult for families to participate in effectively. One reason is that many different kinds of professionals are involved. Parents may not be familiar with the knowledge and skills that special educators, psychologists, social workers, or occupational, speech, and physical therapists offer, or know how to gain access to them.

Another source of difficulty is the fact is that many of these professionals work out of agencies that may have obscure or intimidating meanings to adults who have had little or no previous experience with them. The majority of these agencies are public, and many families are reluctant to seek help from public sources. In most communities the

services are provided by a number of different programs. The professionals and agencies themselves may have difficulty coordinating services, identifying gaps, minimizing duplication of services, and communicating about clients in common.

Physician's Role

Most special children are identified within the medical community. Parents turn to physicians as the primary source of information and referral for their child. Physicians and nurses in a medical setting may have little experience with the professionals who help children outside of the hospital or clinic setting. The Task Force on Pediatric Education indicated that pediatricians report little or no training in referring, working with, or communicating with these professionals. They admit to ignorance and lack of skill in coordinating long term case management for families with special children.

Parents have reported that physicians' lack of knowledge about the helping network often results in delays in referral. The delay may be exacerbated by physicians' reluctance to make diagnoses that have ominous implications. Skepticism on the part of physicians about the usefulness and effectiveness of early intervention also may account for their reluctance to refer.

Parent-to-Parent Programs

Programs that help parents with both the emotional reactions to parenting special children and negotiation of the complex territory between the medical professional and other helping professionals have begun to spring up in dramatic fashion around the country. The programs are based on the peer support model. Experienced parents are matched with other parents with less experience and similar needs. These programs rest firmly on recent and substantial social science research. The whole notion of support systems has garnered enormous interest, and has even been called *the* issue of the 1980s.

From Family Support Network, Department of Pediatrics, The University of North Carolina School of Medicine, Chapel Hill 27599-7225.

Social Support

Supportive social networks and close personal relationships have been shown to be related to an impressive number of positive health statistics. Studies in many areas indicate that people who have a community of friends or have a sense of "social connectedness" are less likely to have problems during pregnancy, labor and delivery; have fewer complications after surgery; recover from operations more quickly; require less medicine for a wide variety of ailments; have fewer emotional problems such as depression; have less troublesome joint symptoms if they have arthritis; are less likely to commit suicide; are quicker to recover from automobile accidents; are less likely to die from a heart attack; and, in general, are longer lived and less often bothered by illness!¹

This may sound like a pitch for snake oil but the evidence for the importance of having good friends, who care about you and about whom you care, is very strong. Much of the research in this field is still in the stages of trying to find out what social support really is and what kinds of effects it might have. The rigorous experimental studies that will tell us what kinds of support are most helpful in what kinds of stressful circumstances are still being designed. What we do know is that social support provided by friends is a powerful, positive force for our well-being.

Social support in Families with Special Children

Some studies have investigated the role of social support in families with special needs children. One study revealed that social support is a better predictor of family adaptation, the quality of a parent's interactions with a child, and the development of the child than is the apparent severity of the child's handicap at birth.²

Stressful life changes are known to have a powerful detrimental effect on the quality of a parent's communication with his or her child. Yet in a study that followed families of children discharged from a neonatal intensive care unit, a researcher at North Carolina Memorial Hospital found that social support predicted a stimulating home environment more strongly than stressful life changes predicted negative effects.³ Another study found that social support improved mothers' positive attitudes and behavior, had several significant effects on infant interactive behavior, and moderated the adverse effects of stress.⁴

In one of the rare, adequately designed clinical studies with pre- and post-intervention measures, improved psychological status in chronically ill children occurred in families who had been supported by lay counselors. Mothers with strong social support are clearly and consistently associated with a secure infant-mother attachment, and the findings reinforce the particular value of support to those families under increased stress.⁵

Role of Parents

There is a logical argument to the effect that this valuable social support can best be provided, at least in part, by another parent. It has been suggested that "people who have successfully come through major transitions in their own lives are often best able to help other individuals who are still caught up in the process of realization... Realistic optimism is aided by meeting someone who has negotiated a similar problem and emerged coping cheerfully and well with any resulting disability."⁶ It seems likely that such people might provide, in addition, effective and believable guidance about how life is likely to unfold, something more likely to make the dark unknown of these families' futures seem more predictable and amenable to their control.

Experienced parents, called "Support Parents" in many programs, are likely to have the most practical advice on how best to accomplish the routine tasks of daily living. These Support Parents may also act as navigators in the murky local waters of the complicated human services system designed to help the families. Many families report that having a sense of humor is one of the most important attitudes that make life seem livable. No one is as able to point out the funny side of living out what may seem like a basically sad or tragic story as a parent who has lived through it.

Support Parents may also provide helpful information to parents and professionals based on their experience with services and interventions. Little is known about what form of professional intervention is best at a given time in the life of a special child. Support Parents may prove particularly helpful both to other families and to professionals in recommending what services are most useful at what point.

Parents working with professionals in these ways suggests other roles for the Support Parents. Parent-to-parent programs are growing at a time when a parallel issue has become a priority: consumerism. Parents are taking a more active role in advising and developing services for their children, including those provided by the medical profession.

Results of research from the Human Services Research Institute and the National Association of State Mental Retardation Program Directors confirm this trend toward family centered care. Their national survey of state family support programs indicated that the future will see increases in services that: (1) recognize the family's underlying commitment to caring for their family member with a disability; (2) embrace practices that promote, rather than discourage, increased family independence from the formal service system; (3) take seriously the views of the family and the person with disabilities regarding how services should be designed and delivered; and (4) treat persons with disabilities not as passive recipients of services but as people with individual rights and the ability to participate in their own care as informed self-advocates. Parent-to-parent support programs are extremely well suited for promoting each of these goals.⁷

North Carolina Programs

Parent-to-parent programs are organizing in many parts of North Carolina. The programs take various forms: some are made up of a small group of parents who each have a child with a similar problem or diagnosis; some are large state or national coalitions of parents and professionals banded together to help each other. The fastest growing forms are those that are community based and that bring together families that have children with many different kinds of special needs. The basic service of these programs is to arrange to have experienced, trained Support Parents available at short notice to help families who find themselves in a new, unexpected and seemingly overwhelming situation. Since Support Parents are volunteers there are no fees for participating in parent-to-parent programs. Anyone may self-refer or refer patients or friends to a local program to receive information or be matched to a Support Parent.

The following is a partial list of the community based programs in North Carolina that train and match parents of children with a variety of disabilities or chronic illness.

Alamance Co.	Parents Reach-Out 919/222-6480
Boone	Parent to Parent 704/262-2182
Durham	Parent to Parent 919/682-1129
Fayetteville	Parents Helping Parents 919/486-1606
Gastonia	Parents in Partnership 704/922-5250
Lexington	Parents Reaching Out 704/246-8426
Mecklenburg Co.	Sharing Parent 704/892-9702
New Bern	Parents Helping Parents 919/633-0775
Pitt Co.	Parents Supporting Parents 919/757-6921
Wake Co.	Parent to Parent 919/848-7838, 919/772-5169
Wilmington	Parents Supporting Parents 919/762-1744
Wilson	Parent to Parent 919/237-8266
Winston-Salem	Parents Together 919/924-9309

Under the leadership of the Legislative Commission on Children with Special Needs, Senators Helen Marvin and Russell Walker and Representatives Edd Nye, Charles Cromer, David Redwine, and James Crawford, and others, the North Carolina State Legislature has appropriated money to develop community based parent-to-parent programs. Direct grants to communities are available, as is technical assistance on many aspects of program development and planning such as organizing a Board of Directors, writing organizational by-laws, incorporating, training parents, enlisting involvement and referral by professionals in the community, and fund raising. The statewide organization providing this assistance in North Carolina is called the Family Support Network. The address is CB# 7340, Daniels Rd., University of North Carolina, Chapel Hill 27599. The Family Support Network can be reached by telephone toll-free in North Carolina at 1-800/TLC-0042.

The Family Support Network can provide information about programs in North Carolina and the name of the local coordinator. The FSN also provides assistance to groups interested in starting a program, and maintains a listing of all kinds of local, state, regional and national programs and agencies that may be of assistance to these families. The Family Support Network assists in matching parents in areas of the state without a formal program.

Another area in which the Family Support Network provides assistance to programs is in the promotion of linkages between local parent-to-parent programs and medical training facilities. An innovative program to train pediatric residents at the University of North Carolina at Chapel Hill has focused on sensitizing medical students to the emotional and practical implications of adjusting to the birth and/or diagnosis of a child with disabilities. As part of this training program, residents role play giving a difficult diagnosis to parents, spend time providing respite care to a disabled child in his or her home, and attend meetings of Support Parents at local parent program sites. This training program has been very successful, and residents report that these experiences have had profound effects on the way they will eventually conduct their practice with families of children with special needs. The program continues at UNC-Chapel Hill, and interest in developing a similar training component has been expressed by programs in Greenville and Winston-Salem.

Future Directions

The Family Support Network continues to work toward creating a strong statewide network of community based parent-to-parent programs. Strong public support for state legislation providing funds for local parent programs will assist in this endeavor.

As part of the recent federal legislation PL 99-457, the law that allows states to develop and expand services to preschool children with handicaps, the Family Support

Network has established a contract with the NC Department of Public Instruction and the NC Department of Human Resources to develop a centralized directory of resources for North Carolina. This directory, called the Family Information Network, will be a computerized database of services, resources, materials, training opportunities and expert persons, and may be accessed by calling 1-800/TLC-0042.

Through a grant from the Mary Reynolds Babcock Foundation, the Family Support Network will be exploring ways of encouraging effective parent participation in community and state level policy planning and advisory groups.

The Family Support Network is committed to providing complete and timely information about services, resources, disabilities and related issues to families and professionals; to the development of strong, locally controlled, parent led resource programs for families across North Carolina; and to the continuing education of medical and other human service professionals in understanding and meeting family needs. □

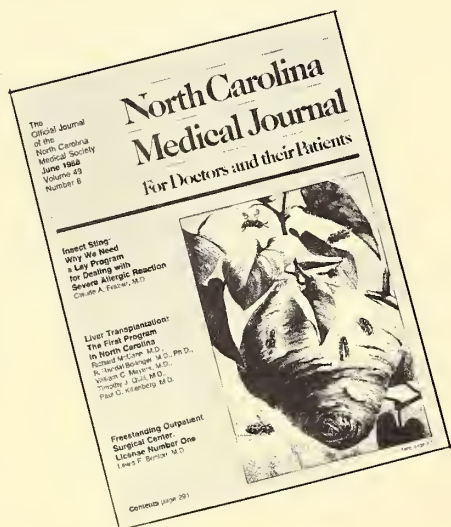
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Dr. Sharp is a pediatrician on the faculty of the School of Medicine at the University of North Carolina at Chapel Hill. He is the Director of the Family Support Network. Ms. Forrest is the mother of a young adult with Down Syndrome. She is immediate past President of the Southeastern Region American Association of Mental Retardation, and the Chairperson of the Board of Advisors of the Family Support Network. Dr. Reichle and Ms. Mastrianni are project co-coordinators of the Family Support Network.

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Edward C. Halperin, M.D., Book Review Editor

Surgery of Basal Cell Carcinoma of the Face, by Daniel Marchac, M.D. New York: Springer-Verlag, 1988, 113 pages, \$89.50.

Reviewed by Sheldon V. Pollack, M.D., Director, Dermatologic Surgery, Duke University Medical Center, Durham 27710.

Dr. Marchac's monograph on surgical management of facial basal cell carcinoma is based on his experience in treating 650 such tumors in France. The book is well written, stressing the esthetic aspects of tumor extirpation while not neglecting the importance of thorough removal of the malignancy. It is copiously illustrated and can be read in one or two sittings without difficulty. Although *Surgery of Basal Cell Carcinoma of the Face* is primarily written for dermatologists, its broad appeal will extend to other specialists who perform facial surgery for basal cell carcinoma.

There are seven brief chapters included in this volume. In "Review of Clinical Features and Treatment," the author gives a concise overview of the epidemiology, clinical features, and treatment options for basal cell carcinoma. He makes the error of mentioning Mohs Chemosurgery only in terms of the infrequently performed "fixed tissue technique" following which surgical repair is not possible. In fact, essentially all basal cell carcinomata now treated by Mohs Micrographic Surgery are treated by the "fresh tissue technique" which allows for immediate reconstruction following tumor extirpation.

"Principles of Surgical Excision" and "Techniques of Surgical Repair" cover the basic principles of excision and repair in a concise fashion. In the most extensive chapter, "Repair by Region," a variety of repairs, mostly local flaps, are reviewed and illustrated for various facial areas. In addition, helpful surgical principles are outlined for each anatomic location.

The fifth chapter is entitled "Analysis of a Series of 225 Cases." Here, the author presents an analysis of the outcomes of surgical procedures in 210 patients operated on between 1969 and 1981 for which three or more years of follow-up data are available. Apparently, follow-up data were not available for 109 additional patients treated during the same period of time. Unfortunately, due to the limited and possibly

biased nature of the data, the conclusions regarding tumor location, type of repair required after tumor excision, cosmetic outcome, and recurrence rate cannot be considered valid.

"Indications," the next chapter, outlines the decision-making required to choose the therapeutic approach most likely to yield the best chance of cure with the least deformity in a given situation. Complications of surgery and their management are concisely presented in the final chapter, "Complications of Surgical Treatment."

Surgery of Basal Cell Carcinoma of the Face is, as the name states, a purely surgical, technique-oriented treatise and not a source for scientific information relating to this type of tumor. In this context, the book responds to the need of dermatologists, plastic surgeons, otolaryngologists, and others for clear and concise technical instruction and guidance in dealing with excisions of basal cell carcinoma and the resulting surgical defects. The illustrations are of a generally high quality and include two pages of excellent color plates which are particularly instructive. I was entirely pleased by the author's strong advice that "the surgeon should try to separate mentally the excision and the repair . . .," a continuing theme echoed in our dermatologic surgery unit at Duke University Medical Center. Too often, surgeons will risk an insufficient resection to facilitate reconstruction.

At \$89.50 this book may be too expensive, considering its brevity, to become part of every skin cancer therapist's library. For those who are learning or presently performing the techniques of skin flap surgery, however, I would recommend it as required reading. I consider the few hours that I spent reading this volume to have been well spent, and I have had the opportunity in our clinic to apply some of the techniques presented.

In Africa with Schweitzer, by Edgar Berman, M.D. Far Hills, NJ: New Horizon Press, \$21.95.

Reviewed by Edward C. Halperin, M.D.

In 1960 Edgar Berman, a surgeon practicing in Baltimore, traveled to Albert Schweitzer's hospital in Lambarene, Gabon, to serve as a temporary replacement for the hospital's chief surgeon. Schweitzer was, by 1960, a world renowned figure—theologian, musician, physician, and Nobel laureate. *In Africa with Schweitzer* recounts Berman's experiences at the hospital.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

Berman treats us to several vignettes of the practice of tropical medicine. We read of operations performed under primitive conditions, devastating infectious disease, the difficulty of the care of the mentally ill in Africa, and the torment of caring for patients who placed equal store in the opinions of shamans.

The vast majority of Berman's book is not, however, concerned with medical issues. Berman's personal motivation for traveling to Africa was to learn more about Schweitzer. He had the opportunity to spend many hours discussing philosophy and theology with the famous man. Berman recorded these conversations in his diary. It is these long conversations which form the majority of the book. This

material is rambling and repetitious—as I am sure a series of conversations over many months truly were. The book could have benefited from careful editing. We learn more about Berman than about Schweitzer from this book. Berman's questions, posed to Schweitzer, are those of a young man searching for answers to some of life's major problems—the existence of evil, justice, truth, the lessons of Jesus.

For the interested reader concerned with learning more about Albert Schweitzer and his philosophy, this book offers little. The reader would be better served by reading Schweitzer's own books and by consulting a more scholarly biography. □

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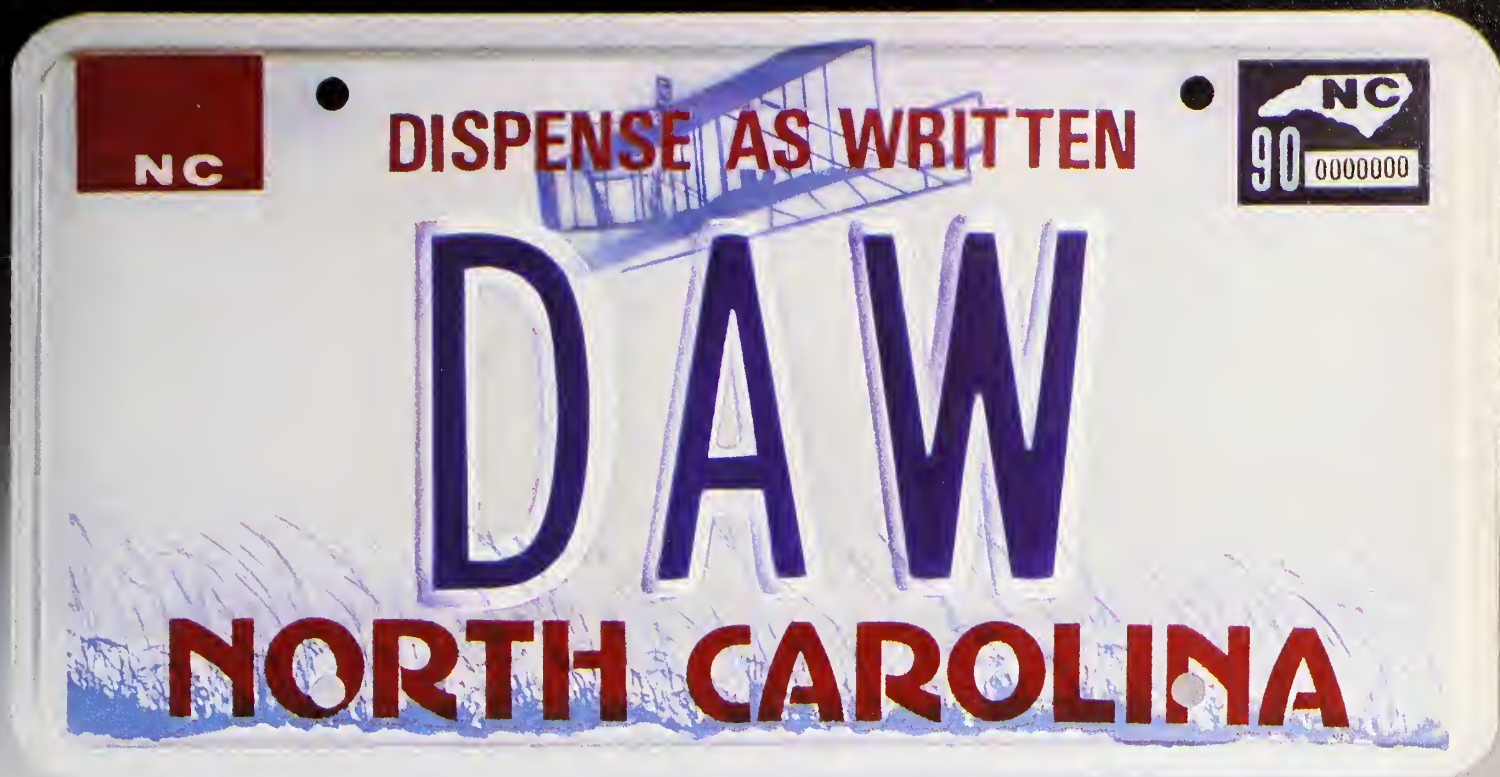
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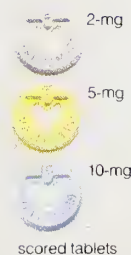
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North Carolina Army National Guard

MEDICAL STUDENT COMMISSIONING PROGRAM

The North Carolina Army National Guard is proud to announce the appointment of two new physicians to its ranks. Captain Christopher Jones and Captain Mark MacDonald were appointed as Medical Corps Officers in the North Carolina Army National Guard following the May 6th commencement exercise at East Carolina University School of Medicine. The new physicians were the first participants in the Medical Student Commissioning Program which offers qualifying medical students a direct officer commission as a Medical Service Corps Officer while enrolled in medical school. During the medical school years the newly appointed officers serve with a National Guard medical section (with pay) one weekend a month and two weeks during the year. Paid clinical clerkships at active duty military installations are also available, and offer an inside look at military medicine. Promotion to Captain and appointment as a Medical Corps Officer in the Army National Guard occurs on medical school graduation day. National Guard service of one weekend per month and two weeks during the year remains the same for our two new Medical Corps Officers.



Captain Chris Jones, M.D. (right), Captain Mark MacDonald, M.D. (center), and Colonel Franklin D. Burroughs, M.D., the North Carolina Army National Guard State Surgeon (left).

Captain Mark MacDonald, M.D.

- Active duty military service USMC 1971-1975
- Enlisted in North Carolina Army National Guard 1976
- BS in Soil Conservation and Zoology—NCSU 1980 & 1984
- Direct Commission as a Medical Service Corps Officer—1986 and served with a North Carolina Army National Guard Aviation Medical Section
- Medical Degree; East Carolina University School of Medicine—1989
- Promoted to Captain and appointed as a Medical Corps Officer
- Residency plans—Family Practice, Riverside Hospital, Newport News, VA
- Future plans with the North Carolina Army National Guard—Assignment to an Infantry Battalion as the Medical Platoon Leader in Ahoskie, NC, and participate in the National Guard's Health Professional Loan Repayment Program which pays a maximum of \$20,000 toward qualifying school loans

Captain Christopher Jones, M.D.

- BA, Biology, UNC-G, 1975; MA, Plant Pathology and Physiology, Virginia Polytechnics Institute and State University, 1978
- Enlisted in the North Carolina Army National Guard—1978
- Commissioned through Officer Candidate School—1980
- Served as a Medical Service Corps Officer in the North Carolina Army National Guard Military Police Medical Section while attending medical school
- Medical Degree; East Carolina University School of Medicine—1989; appointed a Medical Corps Officer in the North Carolina Army National Guard
- Residency plans—Family Practice, Brown University and Memorial Hospital, Pawtucket, Rhode Island
- Future plans with the Army National Guard—Transferring to the Rhode Island or Massachusetts Army National Guard while completing residency training; will return to the North Carolina Army National Guard upon completion



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Blastomycosis

New Treatment for an Old Friend of the Carolinas

Fredric Blum, M.D., and Claude S. Burton, M.D.

North American blastomycosis was first reported by Gilchrist in 1894 in a patient with pulmonary, cutaneous, and osseous involvement.¹ Gilchrist subsequently described the characteristic fungal elements seen in biopsies and ultimately succeeded in isolating the organism, naming it *Blastomycosis dermatitides*.²

Blastomycosis is a sporadic and uncommon disease endemic in North Carolina, other south-central states, and the Great Lakes region of the United States and Canada, especially the western shore of Lake Michigan. The vast majority of cases are seen in men between the ages of 20 and 70.³ The infection is typically acquired via the respiratory tract and may spread hematogenously throughout the body. Amphotericin B has long been the standard therapy of serious and widespread infections.

We report the case of a South Carolina woman presenting with disseminated cutaneous blastomycosis and no evidence of other organ-system involvement. Oral ketoconazole therapy produced a rapid clinical response.

Case Report

A 60-year old woman presented with a two-month history of progressive nodulo-ulcerative skin lesions. She had initially noted the spontaneous appearance of a small red nodule on the right forearm. Over several weeks the nodule enlarged and ulcerated while similar lesions developed on her flank, thigh, and right foot. Several courses of broad-spectrum antibiotics had no effect on the lesions. Attempts at incision and drainage of these "cysts" yielded minimal serous fluid. No cultures were obtained. A dermatologic consultation resulted in a biopsy which a pathologist interpreted as "chronic dermatitis."

The patient was otherwise well and in excellent health. She was a native of South Carolina and denied recent travel.

Cutaneous exam revealed a 5 cm shallow ulcer with a raised erythematous border on the right arm (figure 1, next page). Several smaller ulcers and smooth erythematous nodules were noted on the right flank and right thigh. Marked swelling, erythema, and edema were present on the dorsum of the right foot extending from an ulcer on the great toe (figure 2, next page). The remainder of the physical exam was normal.

A potassium hydroxide (KOH) wet-mount of scrapings from the arm ulcer revealed numerous broad-based, thick-walled, budding yeast cells (figure 3, next page). Skin biopsies for pathology and culture were obtained.

Clinical Course

A presumptive diagnosis of blastomycosis was made and quickly supported by the skin biopsy findings of epithelial hyperplasia, microabscesses, and fungal spores seen within multi-nucleated giant cells. Blastomycosis dermatitides was subsequently isolated from culture of a biopsy specimen. A chest x-ray showed no evidence of pulmonary disease. A bone scan revealed a slight increase in tracer uptake, especially in the hands and feet. The pattern was non-specific and thought unlikely to represent osteomyelitis. Examination of sputum and urine for fungal spores was negative.

The patient was begun on oral ketoconazole, 400 mg daily, and discharged. Significant improvement of the skin lesions was noted on follow-up nine days later. Within two months all lesions, with the exception of the ulcer on the large toe, had shown nearly complete resolution. Increasing the dose of ketoconazole to 600 mg daily resulted in eventual resolution at nine months.

Discussion

Blastomycosis is an uncommon infection that classically presents with a combination of cutaneous lesions, pulmonary symptoms, and a history of fever and weight loss.⁴ In

From the Department of Medicine, Division of Dermatology, Duke University Medical Center, Durham 27710.

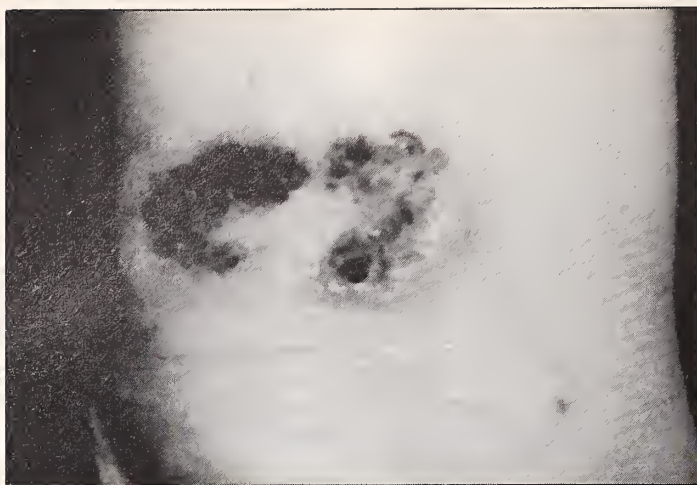


Figure 1. Ulcer above right elbow showing thick central crust and raised erythematous border.



Figure 2. Erythema and diffuse swelling on the dorsum of the foot extend from a shallow ulceration on the medial aspect of large toe and mimic bacterial cellulitis.

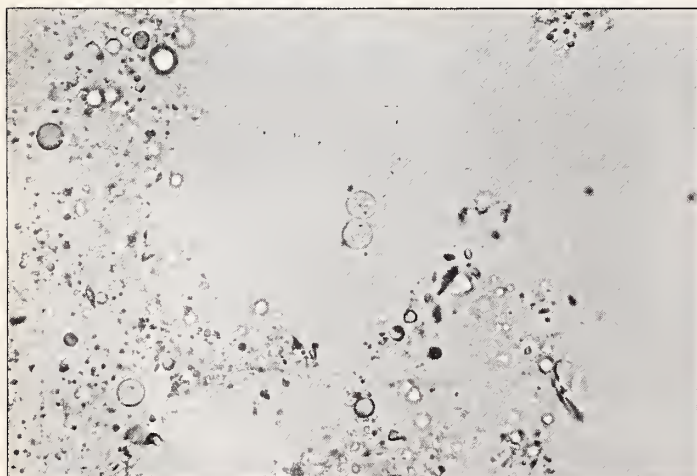


Figure 3. Potassium hydroxide (KOH) wet-mount of scraping obtained from ulcer above the right elbow following removal of superficial crust. Several thick-walled yeast cells of varied sizes are noted. Budding is apparent on several cells (X250).

one study, 29 of 34 patients had skin involvement on presentation and half of these had solely cutaneous disease with no evidence of other organ-system involvement.⁵ As our case demonstrates, the initial pulmonary infection may be subclinical with the patient recalling no illness and feeling well prior to the onset of skin lesions. Extrapulmonary disease occurs by hematogenous dissemination and often lags behind pulmonary symptoms by weeks or months. Any organ system may be involved but a marked predilection for skin, bone, and the male genito-urinary tract is seen.⁶

The infection occurs sporadically and only a handful of known epidemics have occurred. Two of these have been in North Carolina, both being reported from the Duke University Medical Center.^{7,8} The first occurred in late 1954 and early 1955, when ten cases of blastomycosis were seen in the town of Grifton. This small town of approximately 1,000 people is located in Pitt County. Prior to this outbreak, Pitt and the seven surrounding counties had reported a total of only 14 cases of blastomycosis in the previous 16 years.

The outbreak was remarkable in several other ways. The age, sex, and presenting symptomatology were all unusual: seven cases occurred in patients under age 16; half of the cases occurred in women; and all of the patients had pulmonary symptoms. Additionally, erythema nodosum, never previously reported in blastomycosis, was seen in three children.

Despite close scrutiny, no epidemiologic connection could be found among the affected individuals. The investigators sampled numerous indoor and outdoor environments, including soil and water supplies, but were never able to culture the fungus. The precipitating cause for this outbreak remains unknown.

The second North Carolina outbreak was smaller, involving five patients who became ill during November, 1975 in the town of Enfield. The atypical features of the previous epidemic were repeated, with three patients age 11 or less, four of the five patients women, and all patients having pulmonary symptoms.

Since four of the patients lived near peanut farms and the outbreak occurred shortly after the local peanut harvest, this was thought to be a possible common source for exposure. However, samples of soil and vegetation from homes and nearby peanut farms failed to grow the organism. The cause of this outbreak also remains a mystery.

A more recent report⁹ sheds some light on the ecology of blastomycosis. In 1984 researchers in Wisconsin investigated six cases of blastomycosis occurring in two school groups returning from an environmental camp. Examination of other recent visitors to the camp uncovered 42 additional cases. This constitutes the largest outbreak of the disease ever reported. Strong epidemiologic correlation was seen between walking near the camp's beaver pond and subsequent infection. Furthermore, soil samples from both the beaver pond and lodge grew *Blastomycosis dermatitidis*. The authors, noting a correlation between rainy days and the apparent rate of infection, speculated that moisture may play

a role in aerosolizing the fungus for subsequent inhalation. Interestingly, our patient initially denied contact with beavers, but on a follow-up she reported the presence of a large beaver habitat on her property.

In cases of suspected blastomycosis infection, the diagnosis is made by culturing the fungus from body fluids, secretions, or tissue. If skin lesions are present then biopsies for both culture and histopathology should be obtained from the border of an active lesion.

Demonstration of the characteristic thick-walled, broad-based, budding yeast on KOH wet-mounts remains the quickest and easiest method of screening suspicious lesions. Sarosi reported no false positives with KOH diagnosis but emphasized the need for definitive diagnosis by culture.⁶ In rare cases the cells of Blastomycosis dermatitidis may be confused with Coccidioides immitis, Histoplasma capsulatum, Histoplasma duboisii, and Cryptococcus neoformans.¹⁰ Cultures typically require three to five weeks for growth and speciation of the organism. However, in the patient with typical lesions and a positive KOH examination, therapy should not be delayed pending culture results.

In a patient presenting solely with cutaneous lesions and no other symptomatology, the physician must maintain a high index of suspicion for subclinical pulmonary involvement and osteomyelitis. Sputum cultures, chest radiographs, and bone scans are helpful when searching for foci of systemic infection. The predilection of the fungus for the male genito-urinary system makes urine fungal cultures especially important. The yield of these cultures is reported to be significantly increased if prostatic massage is performed before specimen collection.⁶

Amphotericin B has been the drug of choice for treatment of severe pulmonary infection and extrapulmonary disease. Despite the efficacy of amphotericin B, enthusiasm for the drug has always been tempered by the frequent occurrence of severe side effects including headache, anorexia, nausea, fever, hypokalemia, phlebitis, and renal failure. Furthermore, the cost and inconvenience of prolonged intravenous therapy are considerable.

Recent studies point to the efficacy of oral ketoconazole in treatment of the less severe, non-meningeal forms of blastomycosis infections. In these reports patients with pulmonary and/or extrapulmonary disease received 400 mg of ketoconazole daily. In those patients able to remain compliant with therapy and surviving to receive six months of treatment (in one study two patients worsened and subsequently died despite IV amphotericin B), cures were effected in six of eight,¹¹ 26 of 33,¹² and 34 of 36¹³ cases. Higher dose therapy, 800 mg daily, showed a cure rate of 100% in 32 patients receiving a full six-month course, but this regimen was associated with significantly more side effects and necessitated discontinuing ketoconazole in twice as many high-dose therapy patients than low-dose therapy patients.¹²

The most common side effects attributed to ketoconazole in these studies were gastrointestinal complaints, rash, and pruritis. Several patients had transaminase elevations

greater than three times normal but no episodes of fulminant hepatic necrosis were seen. Impotence, decreased libido, male gynecomastia, and menstrual irregularities were seen and attributed to ketoconazole's dose-dependent suppression of testosterone synthesis.¹²

Patients must be carefully evaluated for severity and extent of disease, as well as co-morbid disease, prior to initiation of ketoconazole therapy. Presently, ketoconazole remains contraindicated in patients with life-threatening disease and those with meningeal involvement. An underlying immunocompromised state and hepatic disease may also represent relative or absolute contraindications, depending on severity. There is also a suggestion that low drug levels in urine may be associated with refractory genito-urinary infections.¹²

The patient who presents with cutaneous disease and is otherwise asymptomatic is usually an excellent candidate for oral ketoconazole therapy. Review of the literature suggests an initial oral dose of 400 mg/day. If progression of disease is noted, or no clinical improvement occurs after a month of low-dose therapy, then a higher dose, either 600 mg or 800 mg daily, may be necessary. Doses higher than 800 mg/day are not recommended because of potential drug toxicity, although a six-month course of 1200 mg/day was reported to have been well tolerated by an extremely obese patient.¹⁴ Patients not tolerating ketoconazole or showing disease progression on a high-dose regimen should be switched to amphotericin B.

In summary, we present the case of a 60-year-old woman with cutaneous blastomycosis. The infection, though rare in the United States, is not uncommon in North Carolina. The diagnosis may be missed unless suspicious lesions are carefully examined for the presence of the organism. Rapid diagnosis can often be made from KOH touch preps. The etiology of our patient's infection remains unknown, but the association of beaver ponds with disease, coupled with the presence of beavers on this patient's property, is certainly cause for speculation. Outpatient treatment with low-dose oral ketoconazole has replaced intravenous amphotericin B for many patients with limited, uncomplicated infections. □

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“The arts are passions pursued with discipline,
 and the sciences are disciplines pursued with
 passion. ... The identification of medicine as
 [both] a science and an art is ... a proper
 reflection of the indissoluble relationship
 between all of the arts, the sciences, and
 technology.”

—Arthur M. Sackler, M.D.

Health Fraud—What's Going on in North Carolina?

Charles Davant III, M.D.

All of us in medicine have at least a nodding acquaintance with health fraud. We have all seen the statistics—billions of dollars wasted on fraudulent cures, thousands of people bilked by charlatans. Most of us probably know at least one doctor whom we consider to use dubious practices, or a surgeon a little too quick with the knife. But all of us have come to feel secure in the belief that the multitude of federal, state and local investigative agencies and licensing authorities protect us and the public from the really questionable practitioners—particularly those with no legitimate qualifications at all.

Unfortunately, that is far from the truth. For over two years the State of North Carolina, the North Carolina Board of Medical Examiners (NCBME), the North Carolina State Bureau of Investigation (SBI), the Food and Drug Administration (FDA), the Federal Aviation Administration (FAA), and other state and federal agencies seemed strangely tolerant of a blatant disregard of the medical licensing laws.

This primarily is a story of how our state tolerates the unlicensed practice of medicine; how the State Bureau of Investigation ignores the recommendations of the State Board of Medical Examiners and allows an unlicensed practitioner to continue to charge unsuspecting patients large sums of money for diagnostic tests he cannot legally interpret; how the state Board of Medical Examiners must tolerate the prescription of enormous quantities of injectable analgesics without medical justification; how the Federal Aviation Agency laughs off repeated falsification of pilot license applications by an admitted perjurer and heavy user of drugs; how the FDA ignores the use of an unlicensed medical device which supposedly diagnoses vitamin and mineral deficiencies by computer analysis; and how the perpetrators go on and on unchecked.

From Blowing Rock Medical Clinic, P.O. Box 8, Blowing Rock 28605.

I will also have a few comments on how a few chiropractors have vastly exceeded the scope of their competence and the sphere of practice that the laws of our state allow.

And mostly, this is a story of how sick people, many suffering from cancer, arthritis, heart disease, or other chronic illnesses, have been “ripped off” by an unqualified, unlicensed “M.D.” whose only documented qualification to deliver any aspect of health care in the United States is to take X-rays in Florida. The State of North Carolina allowed this to continue in spite of irrefutable evidence of continuing violation of our licensing laws for over two years.

An Unusual Specialist

I remember the day I first learned my mountain county had been blessed with a most unusual medical specialist. A “court of last resort” for those with incurable diseases.

He seemed a nice enough young fellow, having his lunch at a table near my group. And the lady next to me seemed to know him quite well.

“That’s Doctor Caplinger,” she explained. “He has cancer.” And she told us how a brilliant medical career had been cut short when he had had to drop out of a medical residency.

He didn’t look too ill. “Must have been a lymphoma,” I offered my across-the-room diagnosis.

“No, I believe he said it was his colon. It had spread everywhere,” she corrected me.

When she introduced us as we left, I decided he did look a bit unhealthy. His handshake was limp and a bit myxedematous. Our town is the summer home of several thousand visitors each year, many wealthy Floridians, and it is not unusual for us to have several hundred new faces each year. I didn’t expect to see the unfortunate Dr. Caplinger again.

It was only a week or two later that the first puzzling incident occurred. My telephone rang one evening. It was Dr. Caplinger. “I understand you are an FAA medical examiner.

My certificate is about to expire, and I need to make a trip to Florida. Is there any way you could do an FAA exam for me tomorrow?"

All pilots have regular physical exams by Federal Aviation Agency-designated examiners. We have special training in aviation medicine and the stringent physical requirements a pilot must meet. I have been an FAA examiner for over 10 years. Until recently I have been impressed with the Agency's efforts to make the skies safer by keeping marginal candidates for pilot licenses out of the air.

"That depends on your physical condition. Just how is your health?" I knew he might have qualified for an FAA certificate if his cancer was in remission, but I also knew that I wouldn't be able to issue a medical certificate. I would have to defer his application to one of the regional flight surgeons and the process would take several weeks. I expected to hear the details of the story the lady at lunch had told.

Instead his reply was a simple, "My health is fine. No problems at all."

It wouldn't be the first time Mrs. Brown had gotten a story wrong, and I assumed she had made a mistake. In any event, I had a full schedule and was unable to schedule a pilot exam. He had a thorough FAA physical exam from an examiner in Florida, and was issued an unrestricted certificate. He was a frequent flyer at our small local airport. But things kept coming up. I heard stories about seizures and a coma lasting several days. Several other sources confirmed that Dr. Caplinger himself had told them of his tumor. And the story deepened. He had "almost died after his tumor was discovered." "Modern medicine" had been unable to palliate his disease. In desperation, he had turned to Naturopathy and "the natural methods of healing." And he had "cured himself through naturopathic techniques."

As an FAA medical examiner I have a responsibility to the safety of the public. Visions of a Cessna crashing into a schoolhouse began to trouble me. I am very familiar with the FAA regulations and I knew that there was no way anyone with even a potential seizure disorder would make it through the certification process unless the pilot falsified his medical application. I contacted the FAA regional air surgeon in Jacksonville with my concerns. He reviewed the application Dr. Caplinger had submitted. It showed no evidence of cancer, no history of seizures, no significant medical treatment of any kind.

Now the application a pilot submits when he or she applies for a medical certificate is very specific. It asks specifically about any history of a disorder which might impair a pilot's ability to operate an aircraft safely. Specific items ask about seizures, neurological problems and "medical treatment of any kind." The applicant signs a declaration attesting to the truth of his or her statements under penalty of a "\$10,000 fine and up to five years' imprisonment" for falsification of the application.

Clearly, things didn't make sense. Either Dr. Caplinger had falsified his application or he was lying about his medical history. Something was wrong.

The Clinic

Things began to make a lot more sense when I learned that Dr. Caplinger had opened the "Natural Health and Therapy Clinic" in Boone, a neighboring town. Operating as "Gregory Caplinger, M.D., N.D.," he was practicing naturopathy. Curious, I asked the NCBME about his credentials. They had none on record. I made further inquiries at our monthly county medical society meeting. I found I was not alone in my questions.

"Who is this guy, anyway?" was the response from several members. Several told of seeing patients who had consulted a physician they had never heard of. These patients had been diagnosed as having unusual illnesses—and they were all being treated with large and expensive combinations of vitamins and food supplements. When questioned about his qualifications the response from the patients was always the same: "He must be o.k.—he's a real 'M.D.'"

Just how real an M.D. he was, I was soon to learn. A respected retired cardiologist stopped me after church the next week. "Can't we do something about this quack Caplinger?" He asked. The same lady who had introduced me to him in the restaurant had taken the cardiologist to see Dr. Caplinger's operation. Not realizing he was demonstrating his miraculous equipment to a real physician, he had proudly displayed his computerized diagnostic scanner and other devices for assessing a patient's physical ailments and diagnosing the accompanying vitamin deficiencies. "He's going to kill someone if something isn't done."

I wrote the NCBME again, and the Medical Society also requested that an investigation be made. Just a few weeks later I learned that Dr. Caplinger had used his therapeutic skills on a new patient—an old friend of mine being treated for metastatic malignant melanoma at Duke. Once again the lady from the restaurant was being well meaning. Out of misguided concern she had urged and had finally scheduled an appointment for Jack to see our local "cancer specialist." Both Jack and his wife were Harvard graduates. They were surprised that Dr. Caplinger could do in his office things that couldn't be done at Duke.

Jack described in detail the device with the probe that had been run over his body, and the computer that printed out the analysis with the suggested vitamin and mineral therapy. He wasn't taken in, but he figured he "didn't have much to lose" when he purchased and took the megapriced megavitamins and minerals. He later changed his mind.

Jack passed on to me a copy of Dr. Caplinger's office brochure. He listed himself as "M.D.," and just as many others apparently had, Jack said, "I figured if he was an 'M.D.' he must be qualified." His brochure contained many disclaimers stating that he didn't "diagnose or treat" disease, which seemed obviously designed to protect him from a charge by a patient that he was practicing without a license. The brochure also stated that he worked "closely with the patient's regular doctor." Curious, in view of the fact that none of the 40 licensed doctors in the county ever had any

contact with him.

Within a few weeks of Jack's megamineral therapy his condition began to deteriorate. His melanoma showed up in his liver and bone marrow. Just before he entered the Clinical Research Unit at Duke for an unsuccessful attempt at massive chemotherapy he told he, "You know, I was doing pretty well until I went to see that quack. Do you think that stuff he gave me could have speeded up my cancer?"

I contacted the FDA. I figured they might be interested in an unregistered medical device that purported to be able to diagnose vitamin and mineral deficiencies by running a probe over a patient's body. The FDA, after all, published a number of pamphlets dealing with health fraud and quackery.

I was wrong. I spent the better part of a morning trying to find anyone to talk to about the problem. After I reached the proper people, I was surprised to learn they weren't interested in taking any action against an individual practitioner—licensed or unlicensed. I learned that unless the device is being sold or advertised through the mails, the government will take no action. The FDA urged me to contact my state licensing authorities—which I had already done.

More Questions

The stories continued. On one hand Dr. Caplinger was supposed to be dying, on the other he was actively seeing patients. A local family practitioner received a request to transfer a patient's medical records to him. A local pediatrician saw a child with strep throat who was being treated with a fruit juice preparation and no antibiotic. Several people reported that he was busily doing blood work and electrocardiograms. Contact with the AMA established that Dr. Caplinger had never been licensed in the United States or Canada. He had never taken any licensing examination or the ECFMG. The state of Florida had issued him a license in the early 1980s—as an X-ray technician. He continued to hold a valid pilot's license and was said to own an airplane—in spite of stories of continued seizures and other problems with his health. Both the county medical society and I forwarded incidents as we learned of them to the FAA and NCBME. The FAA was concerned enough to investigate the situation, but Dr. Caplinger was apparently able to convince the regional flight surgeons that he was healthy.

In the summer of 1987, I learned there was documented evidence of his medical problems. During a discussion of his practicing medicine without a license, a local surgeon described a bizarre situation where Dr. Caplinger had requested treatment for a condition that would obviously disqualify him from flying. In the interest of patient confidentiality, he was unable to give details, but I was able to learn that Dr. Caplinger had filled out a medical history questionnaire. I immediately forwarded the surgeon's name and address to the FAA, strongly urging them to investigate. I was amazed and remain so. They never bothered to follow up.

Suddenly, Dr. Caplinger closed the "Natural Therapy Clinic" in Boone and vanished. This apparently coincided with a visit by a representative of the Board of Medical Examiners. We hoped he would fold his tent and steal away, and for several weeks it did appear that he was gone.

Suddenly, he reappeared, operating out of a local chiropractor's office. It was apparently business as usual. It became apparent that he had a little help from a member of the medical profession—an older physician in another county was operating as his "medical consultant." This apparently included telephone prescriptions for thyroid and nystatin for patients the physician had never seen. (When questioned about this practice by an agent, the physician stated he "hadn't realized this was unethical.")

I wondered if he could be practicing chiropractic without a license, and wrote to the chairman of our State Board of Chiropractic Examiners. My letter was never answered.

Suddenly, he moved again, amid rumors of a rift with the chiropractor. He opened the "Blue Ridge Health Clinic" in Blowing Rock. An advertisement appeared in the yellow pages under "Naturopathic Physicians" advising patients that he was "Registered with the North Carolina Board of Naturopathic Physicians." Curious; I didn't know the State of North Carolina had a "Board of Naturopathic Physicians." Neither did the State of North Carolina. But I did find a telephone number for the "NCB of NP." It seems it is headquartered right here in town—at Dr. Caplinger's office.

And he acquired an associate, Dr. Laurence Perry, M.D., a specialist in pain control and "biomagnetic medicine" who treated illness by treating the root cause of disease, "a misaligned magnetic field." He was also an "M.D." I have a copy of his CV. He obtained his M.D. from the British West Indies Medical College in less than two years—apparently by correspondence. And he had a host of impressive diplomas and certificates—all from unaccredited diploma mills with fancy names and seals. The National Council Against Health Fraud was able to identify most of his certifying boards—one of which, the "John F. Kennedy College" in Gary, Indiana, was noted for having certified a cat and a hamster as qualified to practice nutritional medicine.

And in clear violation of North Carolina law they were drawing blood for analysis, doing electrocardiograms, and making medical diagnoses.

Almost by accident, we discovered how extensive their volume was. We asked our hospital laboratory technician to check with some of the outside labs to see if they were picking up specimens at the "Blue Ridge Health Clinic."

"I don't have to ask," she replied. "Several times in the past few months the courier has left reports here when he couldn't find anyone at their office. Lots of reports."

"What kinds of reports?"

Oh, the usual. Chem profiles. A few AIDS tests. Pap smears. I think there was a biopsy report once."

"Well, well, well, I thought. Clear and unequivocal evidence that they were indeed practicing medicine without a license. And also clear and unequivocal evidence that

Roche Biomedical Labs doesn't bother to verify the credentials of their clients. I forwarded the information to the NCBME in Raleigh and waited for action. That was almost two years ago. To the best of my knowledge, the practice is continuing even as I write.

Dr. Caplinger's associate left, but Caplinger continued his practice. Finally an investigator from the NCBME arrived and agreed with our assessment. He was clearly practicing medicine without a license—and his background indicated a license would be a long time coming.

But now came another problem. Since he wasn't a doctor, the Board of Medical Examiners had no authority to take any action against him. They could act against the physician calling in the prescriptions for him, but they were powerless against an unlicensed practitioner.

They referred the matter to the State Bureau of Investigation. More time passed. Nothing seemed to happen. A full year passed without discernible action.

Drugs

More than one person commented "He may not be a real doctor, but that stuff he gives his patients really seems to make them feel better." Maybe there was something to the roots and herbs business, after all. Or maybe not.

Another piece of information came in late summer. I learned that the out-of-county physician had been prescribing large quantities of injectable drugs for Dr. Caplinger. By large, I mean approximately 1,000 10cc vials of injectables like Buprenex and Nubain in less than a year. And there were other drugs as well—Dilantin and Valium. Far more than anyone could be expected to use and safely fly an airplane. Actually, far more than any patient I ever had could take and walk. But it was a quantity conceivably appropriate for a man dying of cancer—which is what the physician who prescribed the drugs apparently told the NCBME he felt Dr. Caplinger was.

I began to wonder if it was the vitamins and herbs that made the naturopathic patients feel better—or whether the magic of modern medicine was simply being repackaged. I wrote perhaps my sixth letter to the FAA strongly urging them to investigate the situation at a particular local drugstore. They finally began to take action, confronting Dr. Caplinger with the evidence of the prescription drugs.

I watched the paper, waiting for the FAA to bring charges. Again, nothing happened. Perhaps embarrassed at being hoodwinked, they allowed Dr. Caplinger to admit that he had perjured himself several times and to voluntarily surrender his pilot's license.

In spite of the FAA's vaunted program to make the skies safer and their avowed determination to prosecute applicants who falsify their applications, they took no action. And yet he admitted a criminal offense.

At least he was out of the air, but it still seems to me the FAA dropped the ball more than once—and missed a chance

to make an example of an admitted perjurer.

After almost a year the State Bureau of Investigation finally appeared and began to ask questions. One of their biggest concerns was the lack of witnesses willing to testify. The only witness I knew of who would have testified gladly was dead—his death possibly speeded up by the gentleman in question.

They produced a stack of lab reports from Roche Biomedical Labs, obtained under a court order. We saw reports clearly indicative of serious medical conditions—including AIDS—but no one we knew personally. To any eye, drawing blood, doing pap smears, taking electrocardiograms and diagnosing and treating human illness is the practice of medicine. And he was clearly doing just that.

And there was the question of where the needles were going. We had unequivocal evidence that his lab was drawing blood from AIDS patients, but where were the dirty needles going?

With a sinking feeling I realized they might be going into his garbage—putting our local sanitation force at risk—and then on to our local landfill.

My partner and I stressed to the agents that we were not so concerned about the vitamins and herbal therapies. Our concern was with his use of "M.D." and North Carolina Board registration quotation—both clearly deceptive. And the use of diagnostic tests such as blood chemistries, urinalysis, pap smears, and electrocardiograms is clearly limited by state law to physicians.

Being a man of great faith, I fully expected the authorities to swoop down and put an end to Dr. Caplinger's act. After all, I reasoned, if I sold a man a bottle of 100 tablets to drop in his gas tank with a promise that they would improve the number of miles per gallon his car delivered, the authorities would be on me like a crow on a June bug. Surely a man selling a bottle of worthless tablets with a promise that they would improve a man's health could expect even swifter action.

I was wrong again. The SBI and our Board of Medical Examiners had in their possession clear and unequivocal evidence that Dr. Caplinger was practicing medicine without a license for almost three years. There was strong evidence of either excessive use or diversion of analgesics. No action was taken for well over two years after this was called to the attention of the only authorities able to do anything about it.

The FAA had an admitted perjurer—a pilot who had admitted the falsification of multiple application forms and may have endangered hundreds of lives. Federal law allows prosecution for fraud, imprisonment for up to five years and a large fine. No action has been taken to date by the FAA.

Finally, something happened. In late November, 1988, the SBI arrested Dr. Caplinger on four counts of practicing medicine without a license. Four counts. He faces fines totalling all of \$400, after charging patients what probably amounts to several hundred thousand dollars. And the SBI raid didn't even slow him down—he announced the next day he would continue his activities.

I spoke to our district attorney. He assured me he understood the concerns of our medical society, and was ready to act. But he could not take any action until the SBI provided him with some evidence on which to bring a charge, and the punishment could not exceed that of a misdemeanor.

Seized in the SBI raid were an amazing collection of framed medical certificates. These included a Doctor of Medicine degree from the British West Indies School of Medicine—a correspondence institution—certificates from various diploma mills attesting to his extensive training in nutrition, and both a privilege license and certification from the “North Carolina Board of Naturopathic Examiners”—a state board the attorney general’s office assures me does not exist. I have an awful feeling these will be returned to him after the trial.

Perhaps I am a bit paranoid. But I wonder. How many real doctors have been censured for excessive use of diagnostic tests? How many surgeons have been called on the carpet when they have erred on the side of caution and implanted that equivocal pacemaker?

In North Carolina, the Board of Medical Examiners reviews any physician prescribing anorexants for more than three months. Yet, in North Carolina the most unequivocal practice of medicine without a license is allowed.

North Carolina law clearly limits chiropractors to manipulating the spine. The Board of Medical Examiners tells me that state law does not allow the drawing of blood, performance of diagnostic tests, and diagnosis of medical conditions by chiropractors. Who are they kidding? One chiropractor in Boone has a half page ad in the yellow pages advertising “Family Health Care” and “Laboratory Services.” A bill from a computerized ECG service was misdelivered to our office and opened by mistake. You guessed it—our local chiropractic clinic was doing ECGs.

We have chiropractors doing everything from rapid strep tests to glucose tolerance tests in their office. I saw a patient concerned because he had been diagnosed as having diabetes by a glucose tolerance test performed in a chiropractor’s office. When a repeat test and glycosylated hemoglobin level were normal he called to complain. Guess what? The adjustments, pancreatic supplements, and diet had “cured” this young man’s diabetes. The chiropractor told him he should be grateful.

Patients routinely bring in bottles of desiccated bovine adrenal, thyroid and ovarian tissue prescribed by a local chiropractor for thyroid, ovarian and adrenal disease. Sold as a food product, no state or federal legislation limits their sale.

I saw a young man after church a few weeks ago. “Doc, I was feeling awfully bad last month, and I thought I was going to have to come see you. But my chiropractor found out what was wrong.”

I was scared to guess. “Mono, maybe?”

“No, adrenal insufficiency. I had to take pills for a month.”

And it goes on. And on.

No licensed physician could stay out of an impaired

physician program if he were using hundreds of vials of injectable analgesics a month. The state health authorities make sure licensed physicians properly dispose of hazardous waste. Our office is inspected regularly by the state to make sure we are properly labeling and recording the samples we dispense. And under our very noses unlicensed, unqualified practitioners are allowed to continue their operation unimpeded. Why?

The Need for Strengthened Laws

I am afraid the answer is clear. Our authorities seem to have better things to do than protect the health of our citizens. If I had no license, I would need no malpractice insurance. I would have no PRO looking over my shoulder second guessing my every move. I could dispense everything from Vitamin B15 to adrenal extract at an enormous markup. And I would have nothing to worry about, because the people who should be doing something about this situation don’t seem to be interested in stopping this. Even though there seems to be more than a little suggestion that some of the prescription drugs prescribed for Dr. Caplinger might have been diverted to unsuspecting patients, the SBI has taken no action.

The Board of Medical Examiners says it is powerless to act against unlicensed practitioners. The board can only refer cases to the State Bureau of Investigation. And cases of this type are obviously not a high priority with the SBI.

Is there any other conclusion? Lacy Thornburgh, North Carolina Attorney General, had multiple reports documenting the unlicensed practice of medicine. He did nothing to stop the practice for over fourteen months. And the man in question was not even enjoined from continuing the clearly illegal practices when he was arrested.

He had the evidence of the pap smears and blood tests, the electrocardiograms and urine studies. The “natural remedies” prescribed for medical diagnoses. The NCBME provided their opinion that the state’s medical practice act was being violated. The district attorney was waiting for something to act upon. And waiting. Waiting for years. It took the SBI over a year to bring any charges at all.

The licensed physician who provided Dr. Caplinger with hundreds of vials of injectable analgesics and who admittedly treated patients on the diagnosis of an x-ray technician without ever seeing them is still practicing his brand of medicine. Why?

Must we wait for a death? What will it take to stop this? Other states don’t allow things like this to go on and on. Why does North Carolina? No one seems to have the authority to act rapidly, even when lives are threatened.

It is clear that major changes in our laws dealing with health fraud must be made. The NCBME must be empowered to deal at once with violations when they learn of them. The penalties for practicing without a license must be increased. And practitioners charging a fee for their services must be held to the same standards as licensed practitioners.

A "Natural Healer" treating diabetes or heart disease should be subject to the same standards as a licensed physician. Someone giving dietary advice for a fee should be held to the same standards as a physician or registered dietician.

Roche Biomedical and other firms providing services that are clearly part of the practice of medicine should be required to verify the license status of their customers. Outside of some public health screening services where no diagnosis is made or advice given, laboratory services should be provided only on the order of a licensed professional.

And those who would use degrees from unaccredited diploma mills to enhance their prestige or credibility should be held to the standards they profess to have earned. Under current North Carolina law, a malpractice suit against a quack is impossible—there is simply no standard of care for quackery.

Is it my imagination? Is it just North Carolina? Or does no one really care? I wonder if we will let practices like this continue. Or will we pay attention and strengthen our laws before someone really pays the price? □

Comment

Eben Alexander, Jr., M.D.

This is a calm, measured, but shrill outcry of a justifiably outraged physician who has tried to find an answer to the problem he expressed through every legal means available to him.

Originally, having known that the "outside physician" who is allegedly supplying drugs to the unlicensed physician mentioned by Dr. Davant had been scheduled to meet with the Board of Examiners, I felt that this need not be published.

However, Dr. Davant has seen this go on now for several years and, at best, the North Carolina Board of Medical Examiners has available to it only the authority through the state statutes (90-14) to revoke, suspend, deny, or annul a medical license.

Obviously, the individuals who are alleged to have done the things that Dr. Davant describes could be found guilty of breaking the law and prosecuted by the state Board of Investigation. This is what Dr. Davant has been anticipating, but it has not occurred.

The North Carolina Board of Medical Examiners is conscious of the need to give everyone who is accused of wrongdoing DUE PROCESS and a formal hearing, if it is requested, with counsel present.

This excellent letter by Dr. Davant clearly points out the "cracks in the floor" through which some individuals, who may be committing criminal acts, fall and fail to be prosecuted by the law. □

From The Bowman Gray School of Medicine, Wake Forest University, Winston-Salem 27103. Dr. Alexander is Chairman of the North Carolina Board of Medical Examiners.

Letters to the Editor

Two letters about Dr. Halperin's article on abortion

To the Editor:

Dr. Halperin presents an articulate and logical argument in expressing his opposition to pending legislation to require parental consent for a minor's abortion.¹ Some of the data he cites in support of his position, however, when examined closely, supports the point of view with which he disagrees.

He states that consent laws do not reduce the number of minors' abortions, citing data from Massachusetts.² Dr. Halperin states that out-of-state abortions performed on Massachusetts minors approximated the drop in total in-state abortions, thereby negating the drop in in-state abortions. Cartoof and Klerman demonstrate an apparent bias in their reporting, however, in stating that out-of-state abortions for Massachusetts minors accounted for the drop in in-state abortions, yet providing data that actually shows a significant reduction in total abortions, including the ones out-of-state. Their own figures indicate 5,113 abortions in 1980 before the law and 3,943 in 1982 after the law, including those performed out-of-state. This 23% reduction in total abortions was paralleled by a 15% reduction in total pregnancies.

Dr. Halperin cites a study showing that the vast majority of minors in Minnesota were unaware of the existence of the parental consent statute following its implementation.³ In an amicus curiae brief filed before the U.S. Supreme Court concerning the Illinois parental consent law, statistics from the Minnesota Department of Health were cited which showed the following: between 1980, the last full year prior to a notification law, and 1982, the first full year during which the law was in effect, the number of minors' abortions decreased by 33%, and during the same period the number of births to teens also decreased by 13%, thus indicating a decrease in the overall teen pregnancy rate.⁴ Blum et al, in their report on teen awareness of the law, derived their data from only 148 Minnesota minors. The weight of the evidence seems, therefore, to suggest that parental consent legislation in Minnesota did have a significant impact on adolescent abortions, and more importantly, total pregnancies. Blum et al in their report on adolescents' awareness of the Minnesota legislation noted that there was "little evidence to indicate large numbers of Minnesota youths leaving the state for abortion."

The notion that parental consent legislation will cause minors to be subject to an increase in criminal abortions and attendant high morbidity is reminiscent of the unsubstantiated rhetoric often advanced by proponents of abortion rights in the public debate around *Roe v. Wade*. Barno has addressed this issue with data from the Minnesota State Board

of Health Vital Statistics from 1950 to 1965, prior to the legalization of abortion as it now exists under *Roe v. Wade*.⁵ During those years in Minnesota there were 658 maternal deaths, with 1,301,745 live births. Only 21 of the deaths were due to criminal abortion.

It is time for North Carolina to join the growing number of states committed to supporting family integrity and helping to reduce unmarried teen pregnancies and abortions by passing parental consent laws. Wyoming recently passed such legislation with substantial margins of support in both legislative bodies, and the Florida consent law passed in 1988 has been cleared by the federal courts to take effect.

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To the Editor:

Dr. Halperin's recent article "Consent for a Minor's Abortion," (NCMJ 1989;50:214-5) was thought-provoking; however, two points give me pause. I doubt if Dr. Halperin's background as a radiation oncologist gives him much insight or experience in this area. Also, I wonder how often (indeed, if at all) he has treated a minor without parental consent.

The article makes an excellent case for the fact that parental consent does not reduce the number of abortions of minors. But, Dr. Halperin's conclusion that House Bill 93 should not become law is apparently his emotional response to that information and really misses the point. This issue should have nothing to do with either the position of pro-choice or pro-life, but should simply be consistent with the existing legal precedent that minors need to have parental consent for surgical procedures.

James B. Hall, M.D.
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Charlotte 28207

To the Editor:

Dr. Ravenel states that when statistical data is "examined closely" it supports a change in the parental consent for abortion law. In my opinion, he is incorrect.

Dr. Ravenel quotes Cartoof and Klerman to the effect that the Massachusetts data show a significant reduction in total abortions performed on minors following implementation of the parental consent law on April 23, 1981. His arithmetical calculation (3,943 is less than 5,113) ignores the detailed statistical analysis provided by Cartoof and Klerman. To wit: (a) Cartoof and Klerman report that immediately following the implementation of the Massachusetts law, the average number of Massachusetts minors leaving the state for an abortion increased by 300% compared to the four prior months. (b) In order to determine the extent to which minors' abortions in Massachusetts were affected by the new parental consent law, Cartoof and Klerman conducted a statistical analysis of abortions between August 1977 to December 1982. When the number of out-of-state abortions performed on Massachusetts minors were added to the monthly totals of in-state abortions there was no statistically significant change in total abortions attributable to the new Massachusetts law. (c) In another statistical evaluation of the Massachusetts data, Cartoof and Klerman used a mathematical model to ascertain whether there was any change in the total number of abortions on Massachusetts minors (performed in-state and out-of-state) as a result of the parental consent law. This analysis shows that "the vast majority of minors who would have had abortions in Massachusetts were it not for the parental consent law are accounted for by the 1,872 minors who went out-of-state for their abortions." Cartoof and Klerman, based on this detailed analysis, conclude that "while advocates of parental consent law support the concept in the name of family unity, enhanced communication between parents and their children, protection of young adolescents who are unable to make mature decisions, and a reduction in the rate of abortion among them, there is little evidence that this law is having those effects. Massachusetts minors continue to conceive, abort, and give birth in the same proportions as before the law was implemented." Dr. Ravenel asserts that the Minnesota data might also lend credence to a change in the parental consent for abortion law. The Minnesota study of 148 minors quite clearly shows that over half of these minors had no awareness of laws related to abortion prior to making a clinic appointment for a pregnancy termination. Less than one fourth were aware that pre-abortion notification of parents was mandated by law. Sixteen percent understood that there was a judicial bypass provision. Less than 10% knew about both the parental notification requirement and the judicial bypass provision. Such data clearly belies any assertion that most minors might make changes in their sexual conduct based upon a knowledge of the complexities of parental consent laws for abortion.²

In support of his views Dr. Ravenel quotes an "amicus curiae brief before the U.S. Supreme Court concerning the Illinois parental consent law." He is, in fact, quoting a brief submitted by an organization called the Americans United for Life Legal Defense Fund, an anti-abortion legal group. This group did quote statistics from the Minnesota Department of Health to argue that parental consent laws altered the teen pregnancy, abortion, and birth rate.³ This quite extraordinary assertion ignores obvious demographic changes in the United States: the proportion of 14- to 17-year-old females in the general population of the United States is decreasing, the rate of sexual education is increasing, and there is more widespread availability of contraceptives.^{4,5} These factors appear to be major influences on teenage pregnancy and abortion. It is quite at variance with the general behavior patterns of adolescents to presume that they will change sexual conduct on a Saturday night because of a state legislature changing a nuance of the parental consent for abortion law.

Dr. Ravenel quotes a 1967 paper by Barno which asserts that, in Minnesota, there was an extremely low incidence of deaths from criminal abortions prior to the 1973 *Roe vs. Wade* decision.⁶ Dr. Ravenel is being selective in his data citation. In the discussion section which follows the Barno article, Charles Stevenson and Lee Stevenson report data from Michigan which is quite at variance with the Minnesota data.⁶ Additional information, from the Centers for Disease Control and the National Center for Health Statistics, show that the number of deaths attributed to or associated with abortion has declined dramatically in the United States and that this decline has been more marked in the category of "other than legal" abortions. These data show that the downward trend of death from illegal abortions is associated with the widespread availability of medically performed, safe, and legal abortions.⁷ Drawing inferences from such data must, however, be tempered with caution because of the possibility of under reporting of deaths associated with criminal abortion.

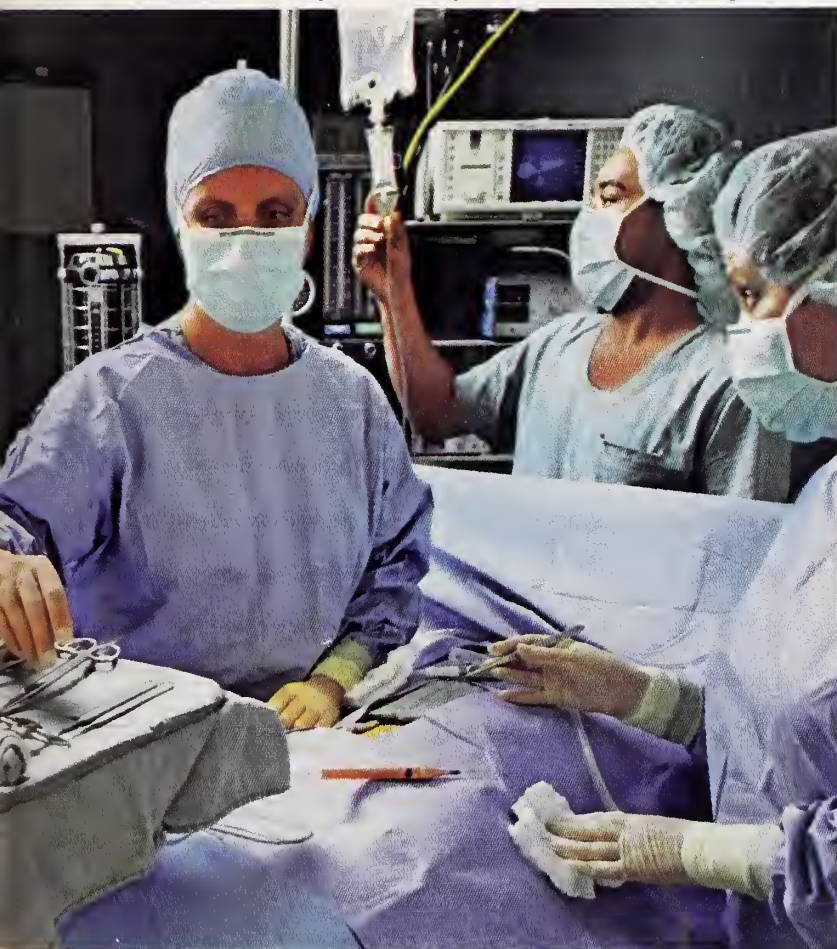
Dr. Hall inquired as to my background. I am responsible for the pediatric radiation therapy at Duke and have never treated a minor without parental or guardian consent. I have also never performed an abortion nor practiced obstetrics and gynecology. In my lack of personal experience in the practice of adolescent obstetrics and gynecology I am no different from the 120 lawyers, real estate agents, business people, and homemakers who constitute the membership of the lower house of the North Carolina General Assembly and who have chosen to vote on the parental consent to abortion law. Since we can all read, ponder the pertinent data, think, speak, and write, we are all, in my view, equally entitled to an opinion.

Dr. Hall comments that there is "existing legal precedent that minors need to have parental consent for surgical procedures." There is also existing legal precedent that a North Carolina physician may treat a minor for drug addiction, alcoholism, or for an emergent situation in the absence of parental consent.

continued on page 349



Dr. Holwick outside of hospital where she practices as a civilian traumatologist.



Dr. Holwick in operating room at Letterman Army Medical Center.

JANN L. HOLWICK, M.D.

General and Trauma Surgeon.
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EDUCATION University of Southern California, B.S.;
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OUTSTANDING ACHIEVEMENTS Borden
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Phi Kappa Phi; Bovard Award; ALD Award; American
Institute of Chemists Medal Award; Summa Cum Laude,
University of California; Alpha Omega Alpha.

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Contraindication: Axid is contraindicated in patients with known hypersensitivity to the drug and should be used with caution in patients with hypersensitivity to other H₂-receptor antagonists.

Precautions: General—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Because nizatidine is excreted primarily by the kidney, dosage should be reduced in patients with moderate to severe renal insufficiency.

3. Pharmacokinetic studies in patients with hepatorenal syndrome have not been done. Part of the dose of nizatidine is metabolized in the liver. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix[®] may occur during therapy with nizatidine.

Drug Interactions—No interactions have been observed between Axid and theophylline, chlordiazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450-linked drug-metabolizing enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increases in serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice; although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 550 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect, but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus and at 50 mg/kg it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies conducted in lactating women have shown that <0.1% of the administered oral dose of nizatidine is secreted in human milk in proportion to plasma concentrations. Caution should be exercised when administering nizatidine to a nursing mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Ulcer healing rates in elderly patients are similar to those in younger age groups. The incidence of adverse events and laboratory test abnormalities are also similar to those seen in other age groups. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of nizatidine included almost 5,000 patients given nizatidine in studies of varying durations. Domestic placebo-controlled trials included over 1,900 patients given nizatidine and over 1,300 given placebo. Among reported adverse events in the domestic placebo-controlled trials, sweating (1% vs 2%), urticaria (0.5% vs < 0.01%), and constipation (2.4% vs 1.3%) were significantly more common in the nizatidine group. A variety of less common events was also reported; it was not possible to determine whether these were caused by nizatidine.

Hepatic—Hepatocellular injury, evidenced by elevated liver enzyme tests (SGOT [AST], SGPT [ALT], or alkaline phosphatase), occurred in some patients and was possibly or probably related to nizatidine. In some cases, there was marked elevation of SGOT, SGPT enzymes (greater than 500 IU/L) and, in a single instance, SGPT was greater than 2,000 IU/L. The overall rate of occurrences of elevated liver enzymes and elevations to three times the upper limit of normal, however, did not significantly differ from the rate of liver enzyme abnormalities in placebo-treated patients. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported.

Endocrine—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to Axid. Impotence and decreased libido were reported with equal frequency by patients who received Axid and by those given placebo. Rare reports of gynecostasia occurred.

Hematologic—Fatal thrombocytopenia was reported in a patient who was treated with Axid and another H₂-receptor antagonist. On previous occasions, this patient had experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumentary—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following administration of nizatidine have been reported. Because cross-sensitivity in this class of compounds has been observed, H₂-receptor antagonists should not be administered to individuals with a history of previous hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine administration have been reported.

Overdosage: Doses of Axid have been reported rarely. The following is provided to serve as a guide should such an overdose be encountered.

Signs and Symptoms—There is little clinical experience with overdose of Axid in humans. Test animals that received large doses of nizatidine have exhibited cholinergic-type effects, including lacrimation, salivation, emesis, miosis, and diarrhea. Single oral doses of 800 mg/kg in dogs and of 1,200 mg/kg in monkeys were not lethal. Intravenous median lethal doses in the rat and mouse were 301 mg/kg and 232 mg/kg respectively.

Treatment—To obtain up-to-date information about the treatment of overdose, a good resource is your certified regional Poison Control Center. Telephone numbers of certified poison control centers are listed in the Physicians' Desk Reference (PDR). In managing overdose, consider the possibility of multiple drug overdoses, interaction among drugs, and unusual drug kinetics in your patient.

If overdose occurs, use of activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance.

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In summary, the data do not support the assertion that parental consent for abortion laws modify teenage sexual behavior, conception, pregnancy, and abortion rates. The majority of physicians of this state will, I feel certain, be prepared to objectively evaluate the data and will conclude that the proposed change in the law is ill advised.

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A comment about the article on medication dispensing

To the Editor:

A recent article published in your magazine, "Medication Dispensing: Is It for You?" (NCMJ 1989;50:200-3), written by Clyde Alexander, Ph., was obviously biased and poorly researched. Mr. Alexander reported there are approximately 100 repackaging companies. Why then did he consult with only one repackager when researching? (Bibliography note #7.) The statement that orders are "heavily salted" with generics is also a misconception. Compumed offers a full line of name brand as well as bioequivalent generic medications—to the tune of over 13,000 different items.

Another issue that Mr. Alexander fails to address adequately is the area of cost to the doctor. His comment, "If the repackager could offer drugs to the physician at a lower cost, is it not likely that pharmacies would be clamoring to buy from those same repackagers?" reemphasized the inaccurate information reported in this article. Pharmacies purchase

their medications from the same suppliers as the repackagers. Doctors are often able to buy from these same companies. Doctors purchasing from wholesalers however would entail office staff spending time hand counting pills and the doctors would not have the ability to track distribution in the case of drug recalls. The need for packaging guidelines, quality assurance, and yes, the ability to offer their patients a service that is convenient and often less expensive than a drug store pharmacy is why physicians choose to dispense via repackaging companies.

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New Orleans, LA 70123

Dr. Alexander's response

To the Editor:

While I appreciate Ms. Carr's point of view, I remain firmly convinced that physician dispensing is not for everyone. The physician should carefully weigh the positive as well as the negative of any mercantile arrangement and be aware of the legal admonition—*caveat emptor*.

Clyde Alexander, Pharmacist
Family Practice Center
East Carolina University
Greenville 27858-4354

About the "lung nodule" article

To the Editor:

I found the article by Drs. Milunski and Hampson "Is a Lung Nodule Always a Lung Nodule?" of interest (NCMJ 1989;50:185-6). There is no question that computed tomographic scanning (CT) provided a definitive diagnosis.

However, in many instances of suspected pulmonary nodule, chest fluoroscopy may provide the desired information. Using fluoroscopy, it is usually very apparent whether a "nodule" lies within the lung, or is attached to or is within a rib or other bony thoracic structure. True pulmonary nodules move with the lung during respiration, i.e. inferiorly on inspiration and superiorly on expiration. Parietal pleural and rib densities move with the chest wall, i.e. inversely to lung motion. Moving the patient into varying degrees of obliquity is helpful in determining anterior-posterior orientation of a suspected nodule and may permit visualization of an attachment to a rib or other structure. Turning the patient may also reveal that the nodule lies in or on the chest wall, e.g. the "nodule" may actually represent an elevated skin lesion superimposed onto the lung field by chest x-ray.

In my opinion, fluoroscopy, the oldest real-time radiologic imaging method, remains the most rapid, cost-effective initial approach for evaluating suspected pulmonary nod-

ules. CT examination, of course, may be valuable in those cases where simpler methods do not provide the diagnosis.

Brooks V. Klostermyer, M.D.
Randolph Radiological Assoc., Inc.
Box 1430
Asheboro 27203

A letter to the President of the Society

To Dr. Spangler:

I am certain that you are distressed by the apparent departure from protocol that Specialty Societies of the North Carolina Medical Society utilized in developing their comprehensive approach to legislation on AIDS issues. Since you are aware of the composition of the Bioethics Committee and are sensitive to the profound ethical issues raised by the proposed approach for legislation, I feel certain you would have requested comment from my committee. I am making the following comments, therefore, for myself and do not ascribe them to the committee. However, I do believe that they would reflect a majority feeling.

The political and cost issues created by the proposal have probably been addressed. Therefore, let me raise some ethical issues. The duty of a physician at times must transcend personal concerns that the physician may have. We do not as physicians deliver a commodity service. There is an internal morality in medicine that demands effacement of self interest. It is only by accepting and believing in this primary virtue that we can justify calling ourselves true professionals. To deny that makes us only another trade union.

Dr. Edmund Pellegrino, Director of the Kennedy Institute of Ethics at Georgetown University, believes that the societal sanctioning of invasion of privacy by physicians and the privileges that society permits us create a covenant between physician and patient that cannot be violated by fear of infection, lack of funds or distaste for race and creed.

Until we as a nation accept AIDS victims as ill people with no stigma attached to the disease then we as a society of physicians must be extremely cautious about sending messages to the public which will re-enforce the perception that HIV positive persons should be managed in a manner different from any other ill person. Remember that historically patients with all manner of "dread" diseases have been isolated by society but treated by compassionate physicians. We as a medical society today can do no less.

So, Ernie, use all your persuasive powers. Bring us as a community of physicians back to our roots—to serve the ill with compassion. Do not permit us to lose sight of the fact that we are professionals.

George C. Barrett, M.D.
Chairman, Bioethics Committee
North Carolina Medical Society

About the article on alcoholism treatment

To the Editor:

In their article "Alcoholism Treatment: Cost and Effectiveness Favor Ambulatory Programs" (NCMJ 1989;50:195-8), Ferencik and Mathew make the same kind of generalization of which they accuse the proponents of inpatient care when they recommend a day treatment program stating "the large majority of individuals with an alcohol or drug addiction seem to benefit from day treatment." They treat the alcoholic population as if it were homogeneous and do not differentiate adequately between the different phases in the course of the illness.

Pattison, Coe, and Rhodes¹ have pointed out that "the development of a rational approach to treatment then must take into account the observed variabilities within each of the three major dimensions of patient population, treatment method and facility, and treatment outcome." The studies reviewed by Miller and Hester² and used by the authors to support their argument, ignore this advice and make comparisons based on random allocation of subjects to two programs with subsequent comparison of outcomes.

It would be useful for Ferencik and Mathew to identify which type of patients do best in their day treatment program and for what phase of the disease course is such a treatment indicated.

David Ames, M.D.
Pitt County Mental Health, Mental
Retardation and Substance Abuse Center
2310 Stantonsburg Road
Greenville 27834

References

- 1 Pattison M, Coe R, Rhodes R. Evaluation of alcoholism treatment: a comparison of three facilities. Arch Gen Psychiatry 1969;20:478.
- 2 Miller W, Hester R. Inpatient alcoholism treatment: who benefits. Am Psychologist 1986;41:794.

North Carolina Medical Society 1989 Meetings

SPORTS MEDICINE SYMPOSIUM

June 30 - July 2
Shell Island Hotel
Wrightsville Beach, NC

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Grove Park Inn
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Information: Alan Skipper
NCMS Headquarters
222 N. Person St.
Raleigh 27611
1-800/722-1350

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June 30-July 2

19th Annual Sports Medicine Symposium

Place: Wrightsville Beach

Fee: \$60 (registration)

Info: W. Alan Skipper, Executive Assistant, Conferences,
North Carolina Medical Society, P.O. Box 27167,
Raleigh 27611. 919/833-3836.

July 10-14

31st Annual Postgraduate Course/Morehead Symposium

Place: Atlantic Beach, NC

Credit: Category 1 AMA, AAFP, CEUs

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

July 14-16

NC Chapter Meeting - American College of Surgeons

Place: Asheville

Credit: 8 hours Category 1 AMA

Info: Mrs. Carol Russell, Executive Assistant, Specialty
Societies, NCMS, P.O. Box 27167, Raleigh 27611.
919/833-3836

July 16-21

24th Annual Meeting, Microbeam Analysis Society

Place: Asheville

Credit: Category 1 AMA, CEUs

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

July 23-27

Southern Ob/Gyn Seminar

Place: Grove Park Inn, Asheville NC

Credit: 15 hours, Category I

Info: W. Otis Duck, M.D., Treasurer, Southern Ob/Gyn
Seminar, Inc., Drawer 729, Mars Hill 28754

July 24-29

12th Radiology Postgraduate Course

Place: Pine Knoll Shores

Credit: Category 1 AMA, CEUs

Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

August 31-Sept 1

Annual Highland/Duke Psychiatry Symposium

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Info: Cindi Easterling, Office of CME, DUMC, Durham
27710. 919/684-6978

September 7-8

ACLS Retraining Course

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Credit: 8 hours, AAFP

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Info: Helen Creech, R.N., Course Coordinator, Rex
Hospital, 4420 Lake Boone Trail, Raleigh 27607. 919/
783-3161

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In Memoriam

Ignacio Bird, M.D.

A child was born in San Juan, Puerto Rico on November 19, 1905. A retired physician died on March 28, 1989. These dates indicate the life span of Ignacio Bird, known to his many friends and colleagues as "Bird."

Bird came to the United States as a teenager and obtained his Bachelor of Arts degree from Cornell and his medical degree from Yale. His internship was served at Bellevue Hospital in New York City, and his radiologic residency ensued at the University of Rochester, New York. Bird was radiologist at Herman Biggs Memorial Hospital in Ithaca, New York before coming to Greensboro, NC in 1945. He served as Chief of Radiology at Wesley Long Community Hospital from 1945-1975, when he retired from the active practice of medicine. Bird also served as visiting radiologist at Moses Cone Memorial Hospital in Greensboro, as a clinical Assistant Professor in Radiology at Bowman Gray School of Medicine, and as Consultant Radiologist to the Jefferson Standard Insurance Company.

Bird belonged to numerous organizations, including the Greensboro Academy of Medicine, Guilford County Medical Society, Medical Society of North Carolina, the American Medical Association, Radiological Society of North America, and the North Carolina Chapter of the American College of Radiology. He was honored by appointment as a Fellow in the American College of Radiology, and served as President of the State Radiological Society, 1960-1961. He was a member of Our Lady of Grace Catholic Church in Greensboro.

Bird had an uncommon zest for life. He was unsurpassed as a dinner partner, for he would regale the guests with witty, perceptive, and interesting stories out of his past - many with a personal aspect reflecting his many interests which included travel, languages, music, photography, reading, and people.

Bird was a caring, compassionate man. His warm and kindly outlook brought forth affection and admiration from others. People spoke of his considerate, sensitive, and understanding manner.

But life on this earth is a journey, and the final destination of that journey is always death. Bird arrived at that destination on March 28, 1989. He stands tall in our memory, and will be sorely missed.

Bird is survived by his wife, Lucy, three daughters - Juanita, Christine, and Jeanne - and two sons, Warren, and Richard. Bird had a special interest in Boys Town, Omaha, Nebraska, and many of his friends plan memorial gifts to this worthwhile and nationally known endeavor.

"Death is not a period, but a comma in the story of life."

— Guilford County Medical Society

Richard Berry Dunn, M.D.

Richard Berry Dunn, M.D., of Greensboro, died on March 11, 1989 in Moses Cone Memorial Hospital.

Dr. Dunn, a retired Obstetrician-Gynecologist, was born in Warren, Pennsylvania. His undergraduate work was at St. Lawrence University. He completed a residency in his specialty at the Johns Hopkins. He practiced in Greensboro from 1936 until his retirement in 1983.

Dr. Dunn was a member of many societies including the Guilford County, A.M.A., North Carolina OB/GYN, South Atlantic OB/GYN, and was a Fifty Year Club Member of the North Carolina Medical Society.

He was a founding fellow of the American College of OB/GYN and was Board Certified in that Specialty.

He was also a member of the First Presbyterian Church, The Greensboro Kiwanis Club, and was a charter member of the Forest Oaks Country Club.

Surviving are his wife, Mrs. Ruth Simpson Dunn; Mrs. Kathleen Howard and Ms. Helen Johnston both of Greensboro, Mrs. Catherine Putsie Currie of Atlanta; sons Richard Berry Dunn and Michael Dunn of Greensboro; William Dunn of Burlington, and seven grandchildren.

— Guilford County Medical Society

Marion Henry Bertling, M.D.

Marion Henry Bertling, M.D., of Greensboro, died on March 29, 1989.

Dr. Bertling was native of Ohio, and graduated from Ohio State. He received the M.D. degree from Western Reserve Medical School. Obstetrical residency was at Millard Fillmore Hospital, Buffalo, and Durham Watts Hospital. He practiced in Greensboro from 1948 until his retirement in 1980 when he devoted full efforts to the Guilford County Planning Center. He was also consultant in Obstetrics and Family Planning for 58 counties in North Carolina for the State Board of Health.

In 1982 he received a Citation from the Guilford County Board of Commissioners in appreciation of and recognition for meritorious service which had made a significant contribution to Public Health in Guilford County. Also in 1982 he received the Distinguished Service Award from the North Carolina Public Health Association.

Dr. Bertling was a member of many societies including Guilford County and North Carolina, A.M.A., North Carolina OB/GYN, South Atlantic OB/GYN, and was past president of the Greensboro Academy of Medicine. He was a Fellow of the American College of OB/GYN and was Board Certified in OB/GYN.

Dr. Bertling was a 32nd degree Mason and a member of the Greensboro Lions Club where he was active in collecting eye donor wills for the club. He was a member of the Irving Park Methodist Church.

Surviving are his wife, Mrs. Eleanor Rice Bertling; daughters, Mrs. Judith Edwards of Greensboro, Mrs. Marion Bertling Riggs of Franklinville; sisters, Mrs. Mary Hughes and Miss Dorothea Bertling of Piqua; brothers Donald Bertling and Alan Bertling of Piqua; five grandchildren.

The passing of Richard B. Dunn and Marion Bertling in 1989 and John Burwell in 1980 ended an era of practice of Obstetrics and Gynecology in this area. These three men

brought modern day specialty medicine to the women of Greensboro and the surrounding communities. Through the groundwork laid by these physicians and carried on to this day exists a mechanism for high quality care of all women regardless of their ability to pay for physician services.

They have left with us a legacy of which we should all be proud and should try to emulate. It is hoped that the present day Obstetricians and Gynecologists will carry forward to future generations what these men have left to us as well as adding a legacy of which future generations will be equally proud.

— Guilford County Medical Society

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Contraindications: VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

Warnings: **Angioedema:** Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

Hypotension: Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Heart failure patients given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed, caution should be observed when initiating therapy (See DOSAGE AND ADMINISTRATION). Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in heart failure patients), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

Neutropenia/Agranulocytosis: Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Precautions: **General:** **Impaired Renal Function:** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

Evaluation of patients with hypertension or heart failure should always include assessment of renal function. (See DOSAGE AND ADMINISTRATION.)

Hyperkalemia: Elevated serum potassium (> 5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Information for Patients:

Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

NOTE: As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions:

Hypotension: **Patients on Diuretic Therapy:** Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

Agents Causing Renin Release: The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methylglucoside, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

Lithium: A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. Although a causal relationship has not been established, it is recommended that caution be exercised when lithium is used concomitantly with VASOTEC and serum lithium levels should be monitored frequently.

Pregnancy—Category C: There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies in pregnant women. VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: Milk in lactating rats contains radioactivity following administration of 14 C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Adverse Reactions: VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

Hypertension: The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

Heart Failure: The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

Cardiovascular: Myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); cardiac arrest, pulmonary embolism and infarction; rhythm disturbances; atrial fibrillation; palpitation.

Digestive: Ileus, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis.

Nervous/Psychiatric: Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

Urogenital: Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION), prostatic hypertrophy.

Respiratory: Bronchospasm, rhinorrhea, asthma, upper respiratory infection.

Skin: Herpes zoster, pruritus, alopecia, flushing, photosensitivity.

Other: Muscle cramps, hyperhidrosis, impotence, blurred vision, taste alteration, tinnitus.

A symptom complex has been reported which may include fever, myalgia, and arthralgia, an elevated erythrocyte sedimentation rate may be present. Rash or other dermatologic manifestations may occur. These symptoms have disappeared after discontinuation of therapy.

Angioedema: Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

Clinical Laboratory Test Findings:

Serum Electrolytes: Hyperkalemia (see PRECAUTIONS), hyponatremia.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g % and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

Other (Causal Relationship Unknown): In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported.

Liver Function Tests: Elevations of liver enzymes and/or serum bilirubin have occurred.

Dosage and Administration: **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

Dosage Adjustment in Hypertensive Patients with Renal Impairment: The usual dose of enalapril is recommended for patients with a creatinine clearance > 30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤ 30 mL/min (serum creatinine ≥ 3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

Heart Failure: VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

Dosage Adjustment in Heart Failure Patients with Renal Impairment or Hyponatremia: In heart failure patients with hyponatremia (serum sodium < 130 mEq/L) or with serum creatinine > 1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg. For more detailed information, consult your MSD representative or see Prescribing Information, Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19486.

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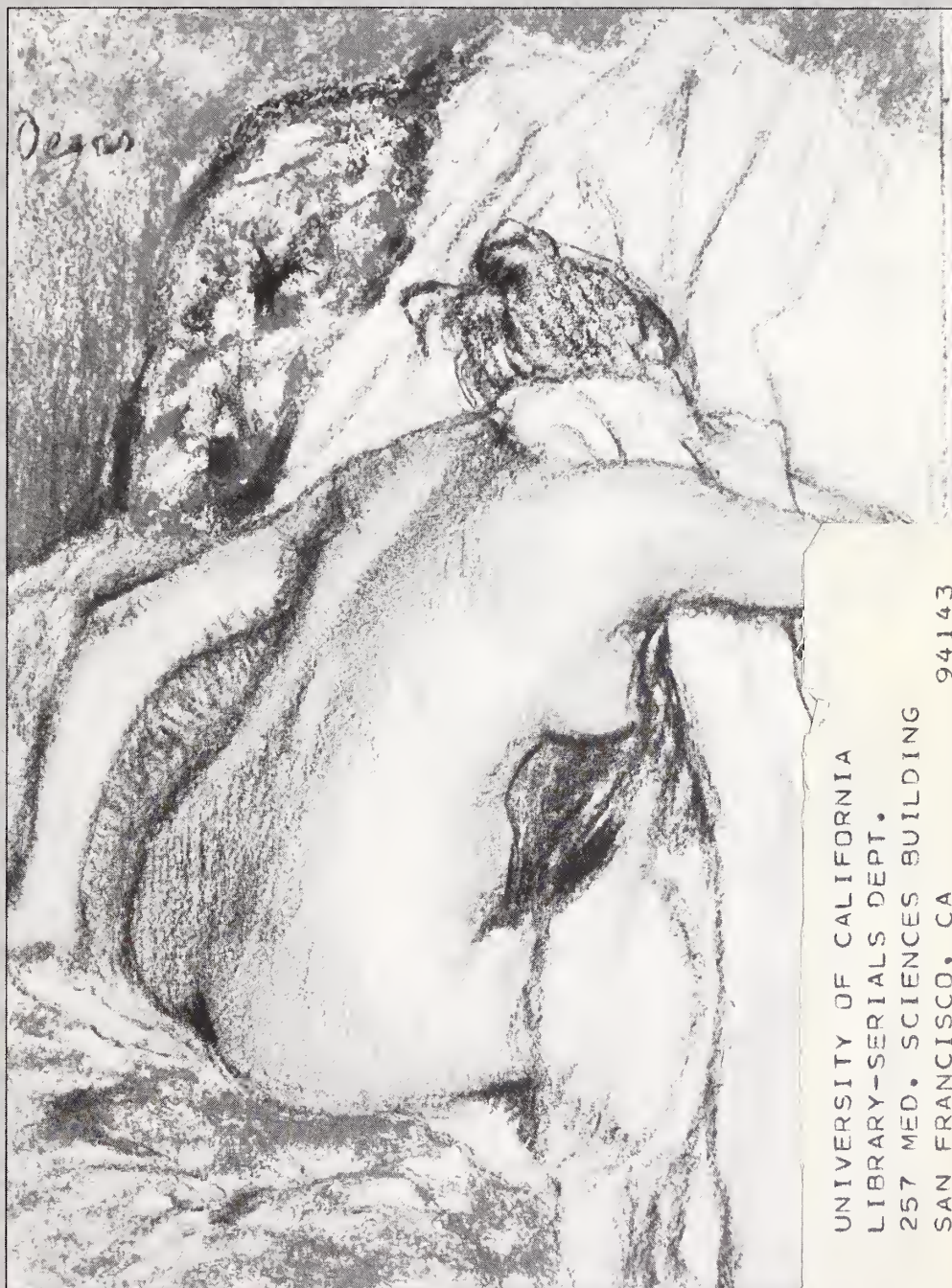
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For Doctors and their Patients

July 1989, Volume 50, Number 7

Published Monthly as the Official Organ of the North Carolina Medical Society

(ISSN 0029-2559)

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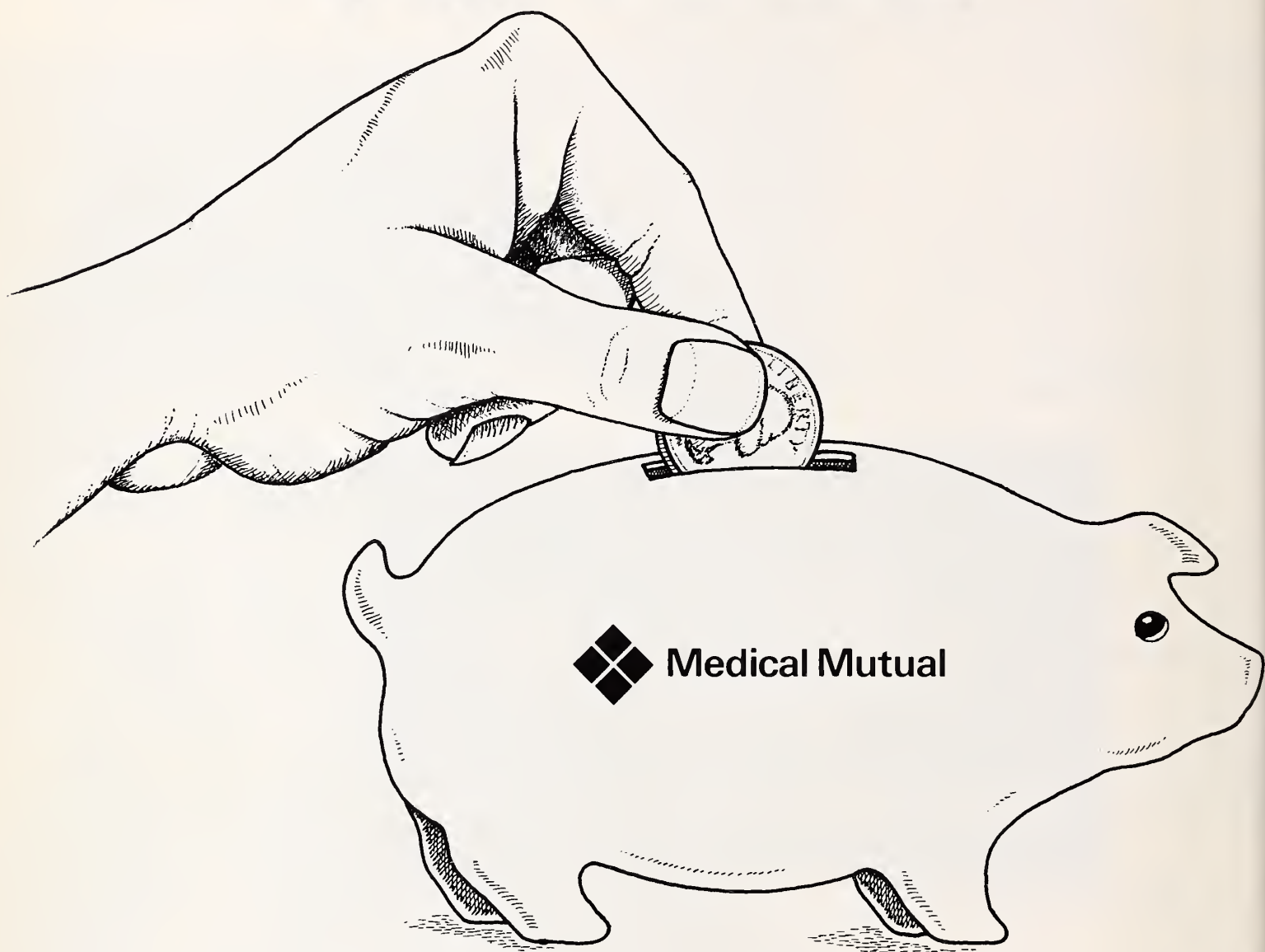
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Thrombolytic Therapy on the Homefront

Intravenous Urokinase in Community Hospitals

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Several large studies have now demonstrated the ability of intravenous thrombolytic therapy to establish reperfusion of infarct related arteries in the setting of acute myocardial infarction.¹⁻³ In addition, successful reperfusion has been associated with improvement in global left ventricular function, decreased in-hospital and long-term mortality and a decrease in congestive heart failure post infarction.⁴ In particular, studies in Jerusalem,⁵ Italy,² and Michigan⁶ have documented that giving thrombolytic therapy early enhances its effectiveness in salvaging myocardium and decreasing mortality. Indeed, the duration of symptoms prior to reperfusion appears to be a critical factor for enhancing survival.

Despite these findings, there has been some reluctance on the part of the community based hospital to initiate thrombolytic therapy. A recent survey by Hlatky et al revealed that most general practitioners were not routinely administering thrombolytic therapy in the community setting.⁷ Lack of familiarity with thrombolytic agents and fear of bleeding complications have impeded the routine implementation of reperfusion strategies on the homefront.

The importance of performing research to develop more effective means of achieving infarct-vessel patency and to assess the efficacy of current therapeutic approaches has become apparent. As the importance of early thrombolysis has been appreciated, however, the feasibility of performing this research only at large academic medical centers has been questioned. The vast majority of patients with acute myocardial infarction are treated in community hospitals. The purpose of this report is to assess whether collaboration among physicians, nurses, and ancillary personnel in the community setting leads to appropriate, safe, and effective administration of thrombolytic therapy along with accurate data collection to conduct vital clinical research.

Methods

The objective of this study was to evaluate the safety and efficacy of early intervention with intravenously administered urokinase in the treatment of acute myocardial infarction. Through 11 collaborative centers in North Carolina, the goal was to initiate therapy within four hours and no later than six hours after the onset of chest discomfort that brought the patient to the emergency room setting. Collaborative centers included: Alamance County Hospital, Alamance Memorial Hospital, Durham County General Hospital, Durham Veterans Administration Hospital, Granville Medical Center, Maria Parham Hospital, Onslow Memorial Hospital, Person County Memorial Hospital, Richmond Memorial Hospital, Sampson County Hospital, and Southeastern General Hospital.

For several years prior to the development of this protocol, the majority of hospitals involved had participated in a collaborative effort in the early use of intravenous streptokinase.⁷ Prior to initiation of the study, an intense inservice education was provided by the Cardiology Division of Duke University Medical Center (DUMC) to both physicians and nurses in the collaborating centers.⁸ Study protocols as well as prepackaged kits containing urokinase for intravenous administration were provided. Immediate and continual tertiary support was provided by DUMC through telephone, ground ambulance and helicopter transport. Measurements of efficacy for the community hospital phase centered on the incidence of patent infarct-related coronary vessels at the time of the angiogram performed after the patient arrived at Duke, and safety was based primarily on the frequency of adverse reactions or complications within the collaborating centers and en route to the tertiary center.

To be eligible for participation in the study, the patient had to meet the following inclusion criteria: chest pain or equivalent symptoms of at least 30 minutes' duration, con-

A list of collaborating centers and individuals appears at the end of the article.

sistent with coronary ischemia and unresponsive to standard sublingual nitroglycerin therapy; ST segment elevation of at least 0.1 mV in at least two of three inferior leads (II, III, and aVF), or at least two of six precordial leads (VI-V6) or I and aVL, or ST segment depression of the precordial leads VI-V4 consistent with posterior injury, or in the presence of left bundle branch block primary ST segment changes in the inferior or anterior leads; onset of chest discomfort within six hours of the time of therapy; age of less than or equal to 75 years; and willingness and ability to give informed consent for participation in the study.

Criteria for exclusion included: history of significant bleeding diathesis; history of gastrointestinal or genitourinary bleeding within the preceding four weeks; stroke within the past six months; major surgery on internal organs during the previous 14 days; uncontrolled hypertension with diastolic blood pressure greater than 110 mm Hg by several measurements despite therapy with sublingual nitroglycerin in the emergency setting; other serious advanced illnesses likely to severely limit life expectancy, such as cancer; cardiogenic shock defined as a systolic blood pressure less than 85 mm Hg unresponsive to volume expanders; previous transmural myocardial infarction in the acutely ischemic region; prolonged cardiopulmonary resuscitation within the previous two weeks; severe trauma within the past six months; psychological or physical inability to participate in the study; women known to be pregnant or suspected of being pregnant.

At the time of patient entry, the emergency department attending physician evaluated each patient for the symptoms and signs of an acute myocardial infarction. After the inclusion criteria were confirmed and the possible reasons for exclusion reviewed, the acceptable patient was given the opportunity to participate in the study protocol. After each

patient was informed of the possible benefits and risks associated with the study, consent was obtained prior to the administration of therapy. At that time, a total three million IU dose of urokinase was infused via a peripheral vein over a 30- to 45-minute period. No patient received heparin in the emergency room setting, but aspirin 325 mg po was administered at the time of thrombolytic therapy initiation. Five thousand units of intravenous heparin was given at the time of cardiac catheterization.

In addition to the above, all patients were treated prophylactically with lidocaine 1 mg/kg IV bolus followed by 2-4 mg/min by IV infusion. The patients also were placed on continuous cardiac monitoring, and atropine was available for reperfusion-induced bradyarrhythmias. Appropriate transportation was arranged for immediate transfer to DUMC for immediate cardiac catheterization and angiography.

Results

A total of 87 patients were enrolled in the study from the community hospitals over a nine-month period. Baseline characteristics are listed in table 1. No major protocol violations occurred in any of the collaborating centers.

The time intervals between relevant events are displayed in table 2. Patients arrived at the collaborating centers a median of 1.1 hours from onset of the symptom that brought them to the emergency room. After arrival at the collaborating center, 1.5 hours transpired before initiation of intravenous thrombolytic therapy. The patients spent a median of 2.2 hours in the community hospital emergency room prior to being transported to DUMC. Sixteen patients (18.4%) were transported by ground ambulance, while 71 (81.6%) were transported by helicopter to the tertiary center. Median transit time for all patients was 0.83 hours. Overall, patients underwent cardiac catheterization a median of 4.6 hours from the onset of the symptoms that brought them initially to their community facility. Figure 1 demonstrates the median delay between arrival of the patient in the community hospital emergency room and initiation of therapy. Although the number of cases is small, differences are apparent.

Table 1.
Baseline Characteristics

(N=87)		
Age (years)	(N)	(%)
60		
Sex	(N)	(%)
Male	72	(83)
Female	15	(17)
Cardiovascular Risk Factors		
Hypertension	40	(46)
Hyperlipidemia	18	(21)
Cigarette smoking	47	(54)
Diabetes mellitus	15	(17)
Family history of premature CAD	47	(54)
Prior angina pectoris	44	(51)
Home medications		
Aspirin	28	(33)

CAD = Coronary artery disease.

Table 2.
Time of Events*

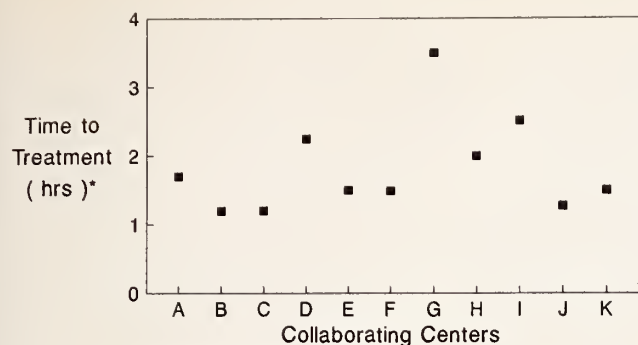
Chest pain to ER arrival	1.1 hrs (0.5—1.8)
Arrival to ER to initiation of thrombolytic therapy	1.5 hrs (1.0—2.0)
Time in ER prior to transport to DUMC	2.2 hrs (1.8—3.1)
Transit time to DUMC	0.8 hrs (0.6—1.2)
Chest pain to catheterization	4.6 hrs (3.3—5.6)

DUMC = Duke University Medical Center

ER = Emergency Room

*Figures shown are median (25th%-75th%)

Figure 1



*Figures shown are median

In addition to successfully administering thrombolytic therapy, collaborating centers were also quite effective in initiating appropriate ancillary therapy prior to arrival at DUMC. Ninety-three percent of patients received prophylactic intravenous lidocaine, 75% intravenous nitroglycerin, 67% morphine, 60% sublingual nitroglycerin, 22% atropine, and 12% required dopamine for hemodynamic instability prior to transport to the tertiary center. Significant complications in the community hospital emergency room included transient hypotension in 41% of patients, severe sinus bradycardia in 25%, and ventricular tachycardia or fibrillation in 6.9%. Significant bleeding complications occurred in only 3.4% of patients; all of these events occurred at IV periacess sites. Thirty-five and a half percent of patients had no emergency room complications whatsoever. Procedures required in the emergency room included one temporary pacer placement, one cardiopulmonary resuscitation, and two required external pacer placements before transport. Finally, no patient died prior to arrival at DUMC.

The ischemic symptoms had resolved or improved in 71 patients prior to the 90-minute angiogram. No patient had worsening chest pain prior to catheterization, and 51 patients had improved or resolved ST segment changes at this time. Of all patients enrolled in the study, only three patients did not have an acute myocardial infarction. Of these, one patient had left ventricular hypertrophy, one had unstable angina, and one had a diagnosis consistent with acute pericarditis. There were no complications from thrombolytic therapy in any of these cases.

Discussion

The principal finding of this study is that early intervention with thrombolytic therapy in acute myocardial infarction can be successfully and safely achieved by practitioners in the community hospital setting. In addition, experimental protocols evaluating interventional strategies for patients with acute myocardial infarction can be initiated and investigated in this setting. Community practitioners can assess the patient status rapidly, obtain informed consent, and follow the protocol, even in this emergency situation.

No adverse outcomes occurred as a consequence of inappropriate evaluation or misdiagnosis in the community hospital emergency rooms. The complications encountered were not dissimilar to the observed clinical course in patients treated conventionally prior to the thrombolytic era. Specifically, significant bleeding occurred in only three patients (3.4%). All complications were treated successfully either with appropriate medical therapy or with interventional procedures.

As previous studies have shown, the effectiveness of thrombolytic therapy in salvaging myocardium and decreasing mortality is most apparent in those patients treated early.^{1,2} By being treated in the community setting, patients received thrombolytic therapy a median of 1.8 hours earlier than they would have by waiting until they arrived at the tertiary center. This fact alone should serve as an impetus for promoting early intervention with thrombolytic therapy in the community setting. It is only with proper awareness and education at the community level that the maximum benefits of thrombolytic therapy can be achieved.

However, the delay of 1.5 hours after arrival of the patient in the emergency room exceeds the ideal time for the decision to treat and the implementation of therapy. The reasons for this delay in treatment probably vary among institutions. The steps needed to successfully initiate treatment include correct triage of the patient; evaluation of the symptoms, the electrocardiogram, and the physical findings; and physical acquisition and administration of the drug. In addition, ancillary therapeutic interventions such as starting oxygen, gaining intravenous access, providing analgesia, and monitoring and treating rhythm disturbances can be time-consuming. In a busy rural emergency room, giving the optimal care to the patient with acute myocardial infarction requires careful management of resources. Future studies should focus on specific methods of reducing the time to treatment.

This study further demonstrates the fact that clinical research with thrombolytic therapy can be successfully undertaken in local community settings. With proper physician, nursing, and ancillary service education, this was possible with a very low rate of complications and no major protocol associated errors. Since most patients with acute myocardial infarction present initially to their community hospitals, evaluation of therapy in this setting could assume major importance in the conduct of future clinical trials. Community initiation of interventional strategies allows patients to have more rapid access to the potential benefits of thrombolytic therapy while maintaining a link to the advantages of rapid implementation of technology in the tertiary center. In addition, by participation in experimental protocols, community physicians, nurses, and other medical personnel have become an important and active part of the clinical research team. Through effective communication and feedback, the tertiary and collaborating centers could develop important information about thrombolytic therapy which could not be obtained using referral centers only.

The value of emergency transport with immediate cardiac catheterization and/or angioplasty remains controversial for all patients,⁹⁻¹² although the benefit of this strategy is clear in selected subgroups.⁸ As further information becomes available, larger numbers of patients will be able to remain in the community for a longer period of time. In an effort to develop further information about appropriate triage, the Thrombolysis and Angioplasty in Myocardial Infarction Study Group (TAMI) have recently initiated a multicenter clinical trial comparing three different thrombolytic regimens as well as evaluating immediate versus delayed (7-10 days post infarction) cardiac catheterization and angiography. The patients randomized to delayed catheterization and angiography are kept in their community hospitals until seven days after the administration of thrombolytic therapy or until a clinical indication for immediate catheterization occurs. It is only with participation of collaborating centers that this important clinical question can be practically addressed.

It is indeed quite satisfying to acknowledge North Carolina's primary role in accomplishing the goals of safe early intervention with thrombolytic therapy in acute myocardial infarction in the community setting. □

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Collaborating Centers

We are indebted to the members of the following collaborating centers:

Alamance County Hospital, Burlington, NC

James Strickland, M.D., R. Tempest Lowry, M.D., Michael Joseph Dimeo, M.D., Becky Clemmons, H.D.-ER, Marion Isley, H.N.-CCU.

Alamance Memorial Hospital, Burlington, NC

James Strickland, M.D., Javed Masoud, M.D., Gene Griner, M.D., William Wilcockson, M.D., Carolyn Summers, H.N.-ER, Gloria Taylor R.N.-CCU.

Durham County General Hospital, Durham, NC

Robert Buchanan, M.D., John Baker, M.D.

Granville Medical Center, Oxford, NC

John Anderson, M.D., David C. Whitcomb, M.D., Stephen Ertischek, M.D., Bonnie Johnson, H.N.-ER, Phylis Finch, H.N.-CCU.

Maria Parham Hospital, Henderson, NC

Deepak Pasi, M.D., Franklin Mills, M.D., Peggy Piccioli,

H.N.-ER, Nancy Strickland, R.N.-CCU, Steve Potter, Pharmacist.

Onslow Memorial Hospital, Jacksonville, NC

Andre Tse, M.D., Edgardo Bianchi, M.D., Eleanor Goodrow, H.N.-CCU, Carla Hogan, H.N.-CCU

Person County Memorial Hospital, Roxboro, NC

Mark Zawodniak, M.D., Thomas Long, M.D., Wayne Bierbaum, M.D., Patty Reynolds, Dir. of Nursing.

Richmond Memorial Hospital, Rockingham, NC

John Vetter, M.D., Josie Singletary, R.N., Anne Singletary, R.N.

Sampson County Hospital, Clinton, NC

Jeffrey Margolis, M.D., Frank Leak, M.D., John Nance, M.D., Latham Peak, M.D., John Rouse, M.D., John Smith, M.D.

Southeastern General Hospital, Lumberton, NC

John Hoekstra, M.D., David Richardson, M.D., Somnath N. Naik, M.D., Edward Bert Knight, M.D., Gerard M. Devine, M.D., Sadananda Hegde, M.D., Frieda Pittman, H.N.-ER.

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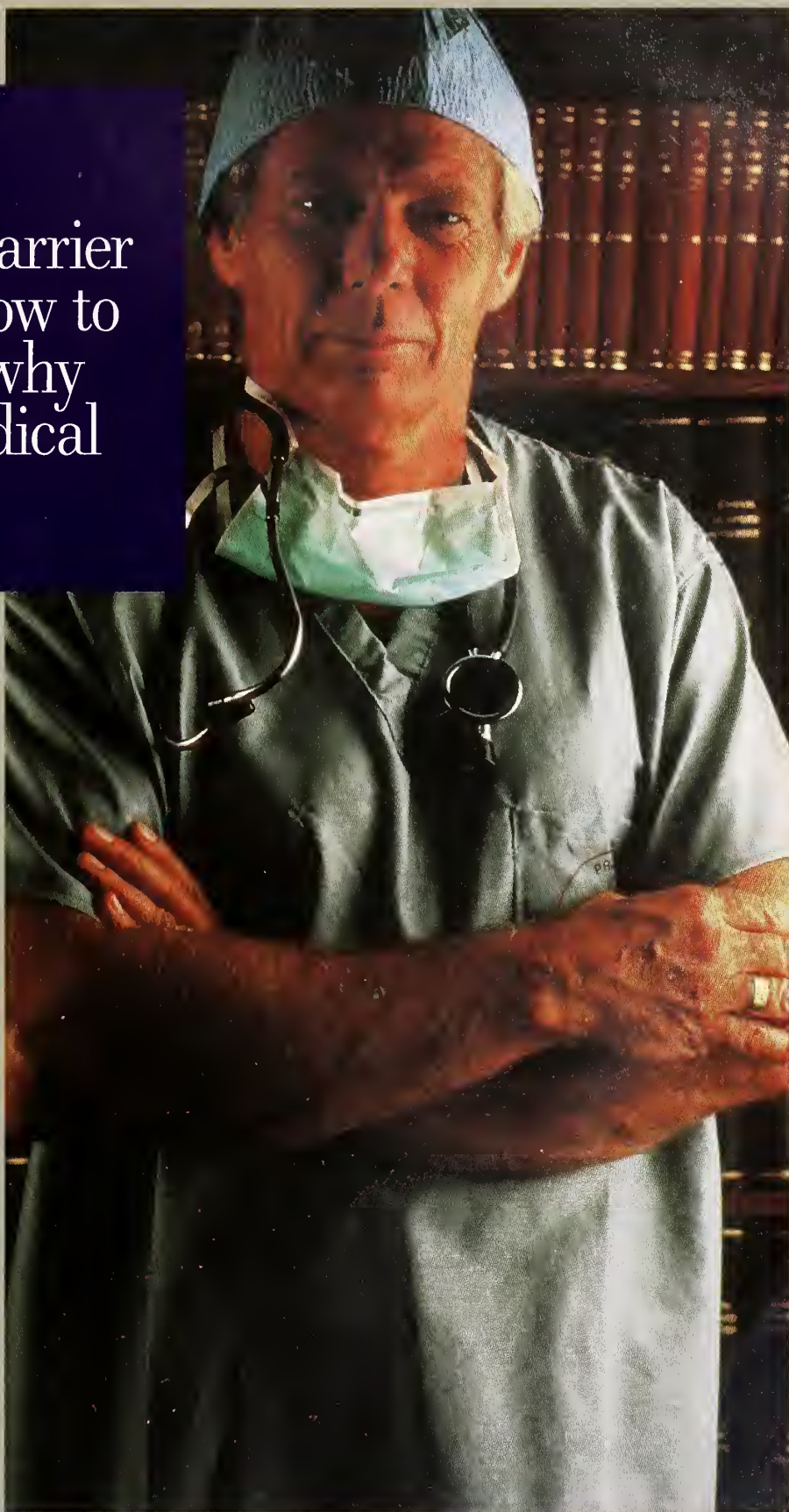
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Creating the North Carolina Physicians Health and Effectiveness Program

John W. Foust, M.D.

November 13, 1988 is a day that all North Carolina physicians and their families should long remember. It was the day that the North Carolina Medical Society, through a cooperative effort with the Board of Medical Examiners of the State of North Carolina, officially established the North Carolina Physicians Health and Effectiveness Program. The implementation of this program is nothing short of a milestone in the history of organized medicine in this state. The program is now available to aid physicians licensed in North Carolina who suffer from impairing diseases such as chemical dependency, mental illness and senility.

Mental illness and chemical dependency are two health problems that have always been with us but seem to be growing each year in numbers of persons afflicted and in costs to our health system. Unfortunately, physicians are not immune to these illnesses. The stress that physicians are under and the ready availability of drugs make them even more susceptible than the average population.

The Medical Society's first long-term commitment to addressing the issue of physician impairment came as a result of a recommendation from a special Ad Hoc Committee on Troubled Medical Providers in 1977 calling for the creation of a Physicians Health and Effectiveness Committee. Theodore R. Clark, M.D., served as its first Chairman and maintained the position until December of 1987. In large measure, it is Dr. Clark's leadership that has guided us to the fortunate position we enjoy today.

At their first meeting, the members of the Committee established the following general principles which, with only minor clarifications, guide the Committee to this day.

That the Committee:

- (a) is motivated by humanitarian concern;
- (b) recognizes that alcoholism, drug abuse and men-

tal illness among physicians are too often ignored and untreated;

- (c) recognizes that alcoholism, drug abuse and mental illness are treatable conditions and that treatment and rehabilitation personnel skilled in these areas have a good success record;
- (d) encourages all impaired physicians to seek help and cooperate in treatment at the earliest possible time in order to regain full effectiveness in practice;
- (e) employs constructive coercion if a physician refuses all offers of assistance at a time when his or her impairment poses a threat to reasonable delivery of medical care;
- (f) employs involuntary coercion when all efforts at constructive and voluntary coercion fail and a physician's impairment threatens the public's or the physician's health.

Since 1977, the dedicated and caring physicians on the Committee have given unselfishly of their time and resources by providing early identification, reporting, education, prevention, referrals for treatment and continued monitoring of impaired physicians. They accomplished much with little during those years; however, it became apparent that the Committee required additional resources and support if they were to be as effective as they felt they should be in meeting this need. Therefore, in 1985 the Medical Society designated staff to work with the Committee in conducting a comprehensive study of impaired physician programs in other states and in preparing recommendations for an expanded program in North Carolina.

As President of the Medical Society, it was clear to me that such a program was desperately needed, so I appointed a Task Force on Impaired Physicians consisting of members of the Physicians Health and Effectiveness Program, the President and President-Elect of the Society and representatives of the North Carolina Board of Medical Examiners. They were charged with recommending activities and serv-

From 3535 Randolph Rd., Charlotte 28211. Dr. Foust is past President of the North Carolina Medical Society.

ices for impaired physicians, developing a plan to include cost estimates and possible funding sources, and coordinating with the Board of Medical Examiners.

Legislation designed to allow the Board of Medical Examiners to contract with the Medical Society for peer review, including impaired physicians, was actively supported by the Society and ratified by the General Assembly on August 14, 1987. The Task Force's charge was then expanded to include meeting the stipulations required by the legislation for the establishment of the long-sought-after program for impaired physicians. The Task Force met regularly, mapping out the details of a stronger, more effective program with a full-time medical director and staff and other support. They, along with officers and staff of the North Carolina Medical Society and the Board of Medical Examiners, worked diligently to design a mutually supported yet independent program of advocacy for identifying impaired physicians early in the course of their illness, for treatment referral, monitoring advocacy and a host of other services. Alan T. McKenzie provided excellent staff support throughout the process of designing and implementing the program.

After undergoing heart surgery in December 1987, Dr. Clark, who had for so long served as the Committee Chairman and leader of the Society's efforts in the area of physician impairment, found it necessary to withdraw from his position. The Society was fortunate, however, that Wilmer C. Betts, M.D., a Raleigh psychiatrist, was able to accept the Chairmanship of the Task Force and the Committee. He quickly picked up from where Dr. Clark had led the Society, and successfully carried on the Program's development. In May 1988, Dr. Clark was formally recognized for his tremendous contributions to the Society during a special ceremony of the House of Delegates.

Progress was at times painstakingly methodical, but the Task Force, the Board, the staff and the Committee maintained their enthusiasm. They drafted and reworked a Memorandum of Understanding countless times, carefully considering every detail of what would later become the heart of the North Carolina Physicians Health and Effectiveness Program. Then they worked equally hard on rules and regulations that coincided with the Memorandum for adoption by the Board.

In hopeful anticipation, the members of the Physicians Health and Effectiveness Committee began gearing up for their new role within the Program. Early in 1988, many of them attended an informative two-day conference on impaired physicians. Directors of highly successful impaired

physician programs in Tennessee, New Jersey, and Louisiana, and an investigator from the Board, made presentations and conducted a series of training workshops on investigations, intervention and other important aspects of the Committee's work.

The House of Delegates responded to the recommendations of the Committee and Task Force at key junctures, demonstrating its support by adopting resolutions and providing resources critical to the successful implementation of the Program. In May 1988, the House of Delegates adopted the following resolution: That reporting suspected physician impairments to the North Carolina Physicians Health and Effectiveness Program is in the best interest of such physicians and is the ethical responsibility of every physician.

Several local medical societies have responded by appointing their own committees to cooperate with the Pro-



Robert A. Fleury, M.D., Jonnie McLeod, M.D., and John W. Foust, M.D., look on as Ernest B. Spangler, M.D., and Harold L. Godwin, M.D., sign the Memorandum of Understanding officially establishing the North Carolina Physicians Health and Effectiveness Program.

gram. Medical Mutual Insurance Company has also demonstrated its commitment to the well-being of physicians in North Carolina by pledging \$25,000 toward the first year's operation of the Program. We still have hope that other malpractice insurers in North Carolina will do likewise. As an individual physician, you can help by donating to the NCMS Foundation.

With the legislation and the Board's rules and regulations in place, the Task Force's intensive seven-month search for a medical director nearly complete, and the Memorandum of Understanding prepared for the Presidents of the Society and the Board to sign, it fell upon the Board of

Directors of the NCMS Foundation, Inc., to accept responsibility for operating the Program; the final administrative piece of the jigsaw puzzle, if you will.

As the outgoing President of the Foundation, I was indeed honored to be a part of the completion of a project that had its beginning while I was President of the Society, following the formal action of the Foundation Board, we took a brief recess to allow our guests, Ernest B. Spangler, M.D., President of the Society, and Harold L. Godwin, M.D., President of the Board, to sign the Memorandum of Understanding between the two organizations, officially establishing the expanded program that so many had worked so long to achieve. It was indeed a historic moment. Dr. Godwin's predecessors in the presidency of the Board, Eben Alexander, M.D., and Charles Duckett, M.D., deserve special recognition for their support and active participation in shaping the Program.

Robert C. Vanderberry, M.D., previously medical director of the Charlotte Treatment Center and a retired Navy Captain, assumed the position of full-time medical director of the Program on December 1, 1988. (See related article by Dr. Vanderberry, page 372.) As a medical educator, Dr. Vanderberry has served as pediatric residency director and as director of a physician assistant program. He has trained many family practice physicians, and for several years he was a consultant for the Navy's drug and alcohol program.

As medical director, Dr. Vanderberry is responsible for receiving reports concerning impaired physicians. He works closely with the Society's Physicians Health and Effectiveness Committee, the Board of Medical Examiners and the committees of component medical societies in coordinating investigations and interventions, establishing treatment plans and monitoring recoveries. He develops educational programs and makes presentations to county societies, hospital medical staffs, medical students and other health-related professionals.

With the Program in place, the real work, that of identifying and assisting impaired physicians and carrying out the educational activities, has begun. We all have great hopes for Dr. Vanderberry and the Program, the Physicians Health and Effectiveness Committee, and the Foundation's Program Committee that will oversee the administrative operations of the program on behalf of the Foundation Board.

All information reported to the Program is strictly confidential and protected by law. If you think you may have a drinking or drug problem, or that you might otherwise require assistance, or if you know of a colleague who needs help, please contact Dr. Vanderberry or a member of the Physicians Health and Effectiveness Committee. They want to help.

This is truly a cooperative effort of enormous magnitude and one that the physicians of North Carolina should be proud to have initiated. Godspeed to all those involved with the North Carolina Physicians Health and Effectiveness Program as they reach out with a helping hand to those in need. □

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Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

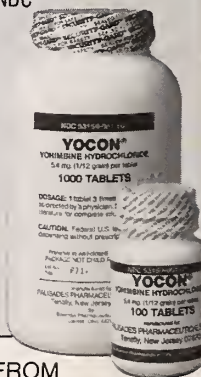
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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Will You Help A Troubled Physician?

The North Carolina Physicians Health and Effectiveness Program

Robert Vanderberry, M.D.

"After the game is over the King and pawn
are returned to the same box."

—Italian Proverb

Since 1900, the American medical system has become the most sophisticated of all the developed nations of the world. The average life expectancy in the United States is now over 70 and rising. While we have not found a "Fountain of Youth" per se, Ponce de Leon would be proud of our efforts.

With our nation so health conscious, one would expect our physicians to be the standard bearers, and therefore, the healthiest cluster in America. Not so. Often, physicians are dying long before their patients. In North Carolina alone, 61 of 216 physicians who died during the period 1985-1988 were 65 or younger; many were in their forties and fifties.

A tongue-in-cheek joke for years has been that mothers and doctors "don't have time to be sick." Society assumes and expects physicians to be healthy mentally, physically and spiritually. Despite the unfavorable medicolegal climate of the past two decades, physicians are still revered and placed on a pedestal. Because of this, more is expected of them than of any other profession. Our nation's physicians have learned their marching orders well; they do not "allow" themselves to be sick.

Stress and Physicians' Health

Many factors enter into the equation when the issue of physician illness or impairment is raised. The process often starts early. Stress and fear of failure are learned quickly by pre-med and medical students. There is perhaps no keener competition.



Robert C. Vanderberry, M.D.

After receiving their medical degrees, physicians are thrust into the position of making life and death decisions. They are taught to react with objectivity and deliberation, not emotion. Anxiety, frustration and even panic must be repressed. It is possible for physicians to become so over-controlled in their demeanor that it spills over into their personal lives. As Dr. Abraham Twerski so aptly stated in his book, *It Happens to Doctors, Too*, feelings become intellectual and logic replaces laughter and tears.¹

Physicians can and do develop emotional and physical problems—sometimes severe problems. It is typical, however, for physicians to deny their own illnesses. Their defense mechanisms are so strong that they cannot or will not allow themselves to see the problem. If there is no problem, there is no need to seek help. Sometimes a physical ailment

Dr. Vanderberry is Medical Director, North Carolina Physician's Health and Effectiveness Program, 4700 Six Forks Road, Six Forks Center I, Suite 220, Raleigh 27609.

will be spotted by a colleague and the doctor will be cajoled into seeking help. Depression and other psychiatric disorders are rarely recognized and even more rarely treated.

It is only a matter of time before repressed feelings rise to the top. Sensing something is wrong, the physician seeks some form of relief. Turning to alcohol is a very common solution. Certain individuals get relief from alcohol for a while, only to develop a tolerance for its effects. The obvious solution for the person who is in denial, but seeking relief, is to increase the dose. Eventually, behavior and judgment become impaired. The same scenario exists when a physician begins to take sleeping pills, tranquilizers, "uppers," or pain pills (often from office samples). A small percentage even turn to injectable pain medications.

Relief drinking or drug use can often lead to compulsive use, and the doctor ends up on an emotional and physical roller-coaster. The ultimate outcome is addiction to alcohol and/or drugs with loss of a practice, freedom, or even life—unless someone helps.

Helping North Carolina Physicians

The North Carolina Physicians Health and Effectiveness Program (NCPHEP) was created to help troubled physicians. Through the wisdom of the North Carolina Legislature and the collaborative efforts of the North Carolina Board of Medical Examiners and the North Carolina Medical Society, NCPHEP was established in 1988. (See related article by Dr. Foust, page 368.) The program is guided and directed by the North Carolina Medical Society Foundation. Its office is in Raleigh at 4700 Six Forks Road, Suite 220. Its hotline number is 919/881-0585.

With intervention by family, friends, colleagues, hospital administrators, and a skilled interventionist, 80% of physicians with psychiatric or addiction problems can be helped. Family, fellow physicians, nurses, allied health professionals and patients must take the initiative to help the doctor in trouble. The lives of thousands of future patients can be saved by saving one doctor. NCPHEP stands ready to receive your call. □

Reference

- 1 Twerski A. It happens to doctors, too. Center City, MN: Hazelden, 1982.

AUTHORS

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Traumas of the Past, Problems of the Present and Fear of the Future

Aftermaths of Parental Chemical Dependency

Ursula Goebels, M.A., Lesley Hughes, M.A., and Roy J. Mathew, M.D.

The contemporary society has begun to recognize alcoholism and drug abuse as two of its major problems with far-reaching consequences. Alcoholism has been identified as a significant factor in road traffic accidents, domestic violence, child neglect and abuse, crimes, absenteeism and marital discord. Alcohol consumption is known to increase the risk for a number of serious physical and psychiatric disorders. The importance of early identification and treatment of chemical dependency is recognized, and active efforts are being made in this regard. Ten to fifteen percent of Americans are believed to suffer from alcoholism, and in 1983 alcoholism cost our society \$116 billion.

Untreated Alcoholism

It needs to be pointed out that the society was slow in recognizing alcoholism as a significant problem. In spite of its high incidence and intimate association with a wide range of physical, mental and social problems, for years and years it received very little attention. Alcoholism went unrecognized and untreated in significant numbers of patients, and many an alcoholic lived and died miserably. Alcoholism disfigured and destroyed not only the lives of the alcoholics but also those of their family members. Children of these untreated alcoholics have started speaking out about the horrors of their childhoods and the aftermaths.

In the late 1970s and 1980s, prolific and effective writers including Claudia Black, Sharon Wegschieider and Robert J. Ackerman wrote about ACOAs' childhood experiences with parental alcoholism and subsequent struggles as

adults. Their voices were echoed by thousands of others with similar experiences. Once the floodgates were opened, children of alcoholics—estimated at 28 to 34 million people—who were struggling with traumas of the past, problems of the present and fear of the future started speaking out and sharing experiences. Self-help groups rapidly took shape and they enabled and encouraged people who were previously afraid to speak of their experiences to open up and to seek help.

The adult children of addiction (ACOA) movement grew rapidly and it has assumed sizable proportions. ACOA can also mean adult children of alcoholics, and some prefer the term COA, children of addiction. In this article, such terms as alcoholism, chemical dependency and substance abuse are used interchangeably.

ACOA Literature

The available information about ACOAs, to date, has been formulated almost exclusively by ACOAs themselves and clinicians who work with this population. This is likely to have biased the present thinking to some extent. For example, since the better adjusted ACOAs are less likely to seek the services of mental health professionals and more inclined to join self-help groups, they are likely to be under-represented in the current estimates of psychopathology among ACOAs. However, it is clear that substantial numbers of such individuals have serious psychological problems. Although relatively little formal research has been conducted on ACOAs specifically, a substantial volume of literature is available on the incidence of psychiatric disorders in the families of alcoholics and on familial transmission of alcoholism. A great deal of information has also accumulated on the effects of adverse childhood experiences on personality development and adult psychopathology.

From Duke Adult Children of Addictions Program and Duke Alcoholism and Addictions Program, Duke University Medical Center, P.O. Box 3074, Durham 27710.

Healthy Families

When family life is stable and healthy, people love, trust and support one another and individuality is encouraged and reinforced. Members of the family are able to face stress and pain as they work through the problems and difficulties of everyday life. Parents support one another in the application of appropriate child rearing practices. Clear generational boundaries and parental guidelines on right and wrong are provided. Communication is genuine and honest. Quarrels are resolved rapidly and effectively and disciplinary actions are taken in an atmosphere of love, respect and responsibility. Family life is relatively happy and interactions with friends and the community are frequent and open.

Children who grow up in such an atmosphere are playful and full of energy. They feel safe to explore their environment and eventually develop a healthy sense of self. They learn from their parents to love and respect others. They model appropriate problem solving behaviors from the parents and develop helpful coping mechanisms. Later in life, these children have little or no problems in separating from their families. Individuation and self identity leads to healthy detachment and the ability to have a satisfying life.

Families of Alcoholics

Chemical abuse by one member of the family touches the lives of all others and disrupts the entire system. Each family member perceives and responds to the behavior of the chemically dependent person in characteristically different ways, and they develop their own coping patterns, resulting in fragmentation of the entire system. The alcoholic's life centers around drinking and coping with the financial, social and physical consequences of drinking. He or she may be irresponsible, unreliable, unpredictable and lacking in moral and ethical standards. Drinking bouts and violent behavior may alternate with self deprecation and deep depression. Suicide is not uncommon among alcoholics.

Chaos and confusion characterize the atmosphere in an alcoholic's home. Coalition between marital partners is weak or non-existent; hatred and anger replace love and affection. Weakening of the marital bond often leads to extramarital relationships. Financial ruin and ill health complicate matters further. In spite of the family's attempt to conceal their disgraceful problem, friends and relatives try to avoid them.

Parental chemical dependency takes a severe toll on children. They are usually neglected, mistreated and/or abused. Family discipline is either over-permissive or characterized by excessive punishment, suppression, or authoritarianism. Statements like, "You are worthless"—"You are stupid"—and "It's all your fault"—undermine the growing child's sense of self-worth, self-esteem and self-confidence. Children often bear witness to verbal and/or physical abuse of their parents who often turn to them for support. A number of them are also battered and sexually abused.

Prior to the age of nine, children perceive themselves as the center of the universe. They have little knowledge or understanding about cause and effect. There is not yet a faculty that allows for rational evaluations of situations. Thus, in the child's mind, he or she is part of each parental quarrel, deadly spell of silence, and abusive act. The child feels responsible for the problems and absence of harmony in the family.

Children cease to be carefree individuals who can trust their parents, explore their environment in a playful manner, learn from it, integrate the experience and eventually develop a holistic and well-integrated self-ensured personality, capable of trusting and loving appropriately. Instead, they develop coping mechanisms that allow them to survive the everyday traumas of their childhood but that hinder the process of normal development.

Different children respond to the pandemonium at home differently. Older ones may take parental roles for younger ones. They try to protect them from the abusive parent and minimize their pain. They may also try to be of support to the parents and help conceal the family secret of alcoholism. Such children go through their lives without a childhood. Others dissociate themselves from the home situation and wait for an opportunity to get out. Yet others become hateful, irresponsible, and ill-mannered like their parents. Anger toward the parents, expressed and suppressed, is very common among the children of alcoholics. Anger is directed not only at the drinking parent but also at the non-drinking one, who directly or indirectly reinforced drinking behavior and failed to support the children.

Personalities of ACOAs

In spite of unpleasant childhood experiences, many ACOAs manage to function well as adults, at least in a superficial sense. However, others develop maladaptive behavioral patterns and adjustment difficulties. As was pointed out earlier, most of the current thinking about ACOA problems is based largely on self disclosures, case reports and uncontrolled studies. Although a great deal has been written about the personality characteristics of ACOAs, it is unclear whether these are specific to ACOAs and how frequently these are seen.

Low self-esteem is one of the characteristics commonly seen in children of addictions. As children, many ACOAs believed that there must have been something that they could have said or done to make family life better, and such convictions continue to haunt them in their adult life. They feel ashamed and guilty about their "inability to set things right." Lack of an internal feeling of self-worth forces many ACOAs to rely on the environment for positive feelings. They can be over-sensitive to other people's opinions and lacking in internalized guidelines for their style of living. In the absence of well developed ego boundaries, they mirror thoughts, emotions, wishes and feelings of individuals around them.

The defense mechanism most frequently used by the alcoholic and family is denial. As children, ACOAs were often taught not to believe their own eyes and ears. The alcoholic parent may have denied bouts of total inebriation, and the spouse too may have denied the ensuing drunken squabbles to the children who were direct witnesses. Over a period of time, children begin to doubt their own perceptions. As adults, they are unsure how to perceive and react to situations and experience a great deal of confusion.

As children, some ACOAs may have coped with the increasing inability of their parents to function by taking over more and more responsibilities in the family. The caretaking behavior may have gained positive recognition from others and the behavior continues on as adults. They feel the need to take care of others even when others do not need any assistance.

Control is another key issue in an ACOAs life. ACOAs may attempt to control people, places and things as they attempted to do with their chemically dependent parents and the related behaviors. Most such attempts are futile, and the realization that even their own life is difficult to control instills frustration and confusion. Many fail to learn from experiences and continue on in the same self defeating manner.

It is not surprising that ACOAs have problems with interpersonal relationships, especially intimate ones. They often choose partners for the wrong reasons—such as the need to take care of or “fix” the other person. They have a higher incidence of relationships with individuals with chemical dependency problems. They experience a great deal of confusion about intimacy, love and sex. Feelings of insecurity, low self-esteem and confusion make ACOAs more willing to maintain a relationship at any cost, and they are likely to tolerate abusive behavior from the spouse.

Psychiatric disorders

The high incidence of psychiatric problems such as depression, anxiety and personality disorders in children of alcoholics is well documented. Large numbers of ACOAs also report eating disorders such as anorexia nervosa, bulimia nervosa and obesity. They are also at increased risk for chemical abuse and dependency. Genetic factors which predisposed the parent to substance abuse may continue to operate in the ACOA. The inherited factor may be predisposition to a psychiatric disorder or altered behavioral or physiologic response to alcohol.

Treatment

ACOA's lead miserable lives in self-contained cocoons enshrouded by inhibitions, vague fears, low self-esteem and the notion, “I do not deserve any better.” Recognition of the problems and the courage to seek help are the most important steps towards recovery. The simplest course of action will be participation in self-help groups. In the warm and supportive

atmosphere of Al-Anon and ACOA meetings, walls of denial, silence and isolation melt down. These meetings help participants recognize that they are really not as alone, as different, as bad, as sick or as crazy as they thought they were. Emotions pent up over a period of years can be vented and problems of the present and past discussed. In an atmosphere of caring, sharing and support, ACOAs can finally acknowledge and accept losses of the past, realize the lack of adequate parenting and explore better ways of dealing with the present. These groups often function as the “safe” environment that was never provided in the home, and serve as training ground to learn or relearn the ability to trust, communicate and interact genuinely and directly.

This is particularly difficult for many ACOAs who may see talking about parental alcoholism as betrayal (revealing the “family secret”). They need to recognize that it is simply the end of the dangerous habit of colluding with the addicted person, which only serves to protect the addiction. In many ways, participation in Al-Anon recovery groups can be the beginning of a long overdue emotional separation from the family of origin and their illness. It can be the first declaration of independence and acceptance of responsibility for one's emotional, physical, social, spiritual and other needs, and the beginning of participation in a “real and normal” life.

If a child's life was lived in a dysfunctional family and based on a series of defensive maneuvers, how can that child know as an adult what “real and normal” is, what is really felt, wanted, and needed, and how to raise their own children lovingly, caringly and effectively? Participation in Al-Anon and ACOA meetings and “working the program” can be extremely helpful in finding answers and learning new skills. However, participation in self-help groups might not be enough for those ACOAs who have developed more severe psychological and psychiatric problems such as depression, anxiety disorders, eating disorders and/or substance abuse. More specialized and intense treatment by specialists who are sensitive to ACOA issues might be needed in such cases. □

Suggested Reading

For those interested in further readings about ACOAs, these books can be purchased at any local bookstore.

Fossom M, Mason MJ. Facing shame: families in recovery. New York: W.W. Norton & Company, 1986.

Ackerman RJ. Children of alcoholics. New York: Simon & Schuster, 1987.

Schaeff AW. Co-dependence: misunderstood—mistreated. Minneapolis, Minnesota: Winston Press, 1986.

Gravitz H, Bowden J. Guide to recovery: a book for adult children of alcoholics. Holmes Beach, FL: Learning Publications, Inc, 1985.

Information about ACOA self-help support groups can be obtained by calling the North Carolina Association for Children of Alcoholics at 919/851-3119.

Information about treatment programs can be obtained by contacting your local mental health center, Step One in Winston-Salem at 919/725-8389, or Duke Program for Adult Children of Addictions at 919/684-3850.

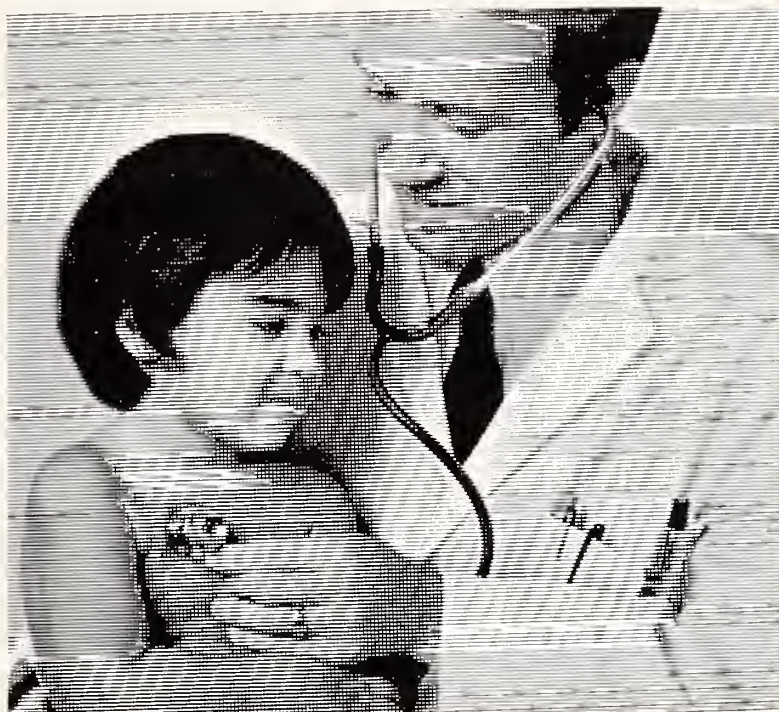
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Ethical Guidelines for Expert Medical Witnesses

William M. Hendricks, M.D.

Ethical guidelines for expert medical witnesses are badly needed in this country. All too often expert witnesses are not "experts" in the area of medicine in which they testify. Even when they are, their narrow interpretation of the medical facts to suit the arguments of the plaintiff's attorneys is both unethical and unjustifiable. When the "right" medical opinion is for hire at the "right" price, justice is subverted.

We, as physicians, are not able to do much about the lack of ethics of the legal profession or the ineptitude and corruption of our criminal-justice system. We can, however, do something about our own ethical standards. There is no malpractice unless another physician says there is. Expert medical opinions should be open to peer review. Physicians who fail to investigate the medical facts or who testify outside their area of expertise should be identified and disciplined. We should not permit "expert" medical witnesses to interpret maloccurrence as malpractice or to advocate standards of medical practice or medical "facts" that are not reasonable or justifiable. Any physician who has ever participated in peer review knows that a knowledgeable physician can find something to fault in any medical chart. Differences of opinion do not constitute malpractice.

Unfortunately, at this time not one of the medical schools in North Carolina has developed ethical guidelines for its faculty when they act as expert medical witnesses. Neither has the North Carolina Medical Society nor the North Carolina Board of Medical Examiners. Since faculty members at our medical schools frequently supplement their salaries giving medical-legal opinions, it is time to hold them accountable for these opinions.

The American Academy of Pediatrics has recently developed reasonable ethical guidelines for expert medical witnesses. These are reprinted here. Our medical schools, the North Carolina Medical Society, and the North Carolina Board of Medical Examiners need to do the same.

Guidelines from the American Academy of Pediatrics

The AAP encourages the development of policies and standards for expert testimony. Such policies should address safeguards to promote accuracy and thoroughness and efforts to encourage peer review of the testimony. Such policies also should attempt to assure that such testimony does not assume an "advocacy" or "partisan" role in legal proceedings.

The following principles have been adopted as guidelines for the American Academy of Pediatrics and its members who assume the role of expert witness.

- 1 The physician should have current experience and ongoing knowledge about the areas of clinical medicine in which he or she is testifying and familiarity with practices during the time and place of the episode being considered as well as the circumstances surrounding the occurrence.
- 2 The physician's review of medical facts should be thorough, fair, and impartial and should not exclude any relevant information to create a view favoring either the plaintiff or the defendant. The ultimate test for accuracy and impartiality is a willingness to prepare testimony that could be presented unchanged for use by either the plaintiff or defendant.
- 3 The physician's testimony should reflect an evaluation of performance in light of generally accepted standards, neither condemning performance that clearly falls within generally accepted practice standards nor endorsing or condoning performance that clearly falls outside accepted practice standards.
- 4 The physician should make a clear distinction between medical malpractice and medical maloccurrence when analyzing any case. The practice of medicine remains a mixture of art and science;

From Asheboro Dermatology Clinic, 407 South Cox Street, Asheboro 27203. Dr. Hendricks is Clinical Associate Professor, Department of Dermatology, Bowman Gray School of Medicine, Winston-Salem 27103.

the scientific component is a dynamic and changing one based to a large extent on concepts of probability rather than absolute certainty.

- 5 The physician should make every effort to assess the relationship of the alleged substandard practice to the patient's outcome, because deviation from a practice standard is not always causally related to a less-than-ideal outcome.
- 6 The physician should be willing to submit transcripts of depositions and/or courtroom testimony for peer review.

- 7 The physician expert should cooperate with any reasonable efforts undertaken by the courts or by plaintiffs' or defendants' carriers and attorneys to provide a better understanding of the expert witness issue.

—Committee on Medical Liability, 1987-1988
William O. Robertson, M.D., Chairman



These guidelines are reprinted from Robertson WO, Cohn BP, Conkling WS, et al. Guidelines for expert witness testimony. Pediatrics 1989; 83:312-3.



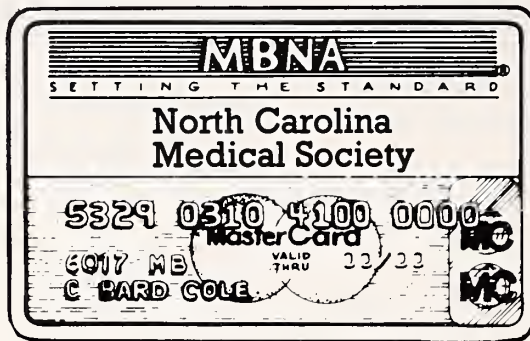
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A Second Opinion

James P. Weaver, M.D., FACS

Mr. Thomas had bled four times in the past three years. This last time, his hematocrit had dropped to dangerously low levels, low enough that I pushed the radiologists to do an arteriogram of his pulmonary and bronchial arteries even though the risk of the procedure made them balk. This was the only way we could have found it: a bronchial artery aneurysm. Unusual, to say the least, it required surgery.

I had never had a case quite like this one. Four bleeds, and now I had to remove the right upper lobe of his lung. Because the lesion was seated deeply in the lung tissue, I had to take the complete lobe.

He had adequate lung function for a 68-year-old man, and his good health almost guaranteed he would tolerate the operation. I had done many pulmonary lobectomies in the past, enough that this operation could almost be looked on as "routine."

As I began the incision in his chest, I could tell he had "good tissue." The skin parted easily, and the fat separated with a firmness not found in the malnourished. The fifth interspace, just below the fifth rib, was cauterized and as the intercostal muscles separated, I could see another sign of smooth sailing: beneath the thin lining of pleura, the lung moved freely, it was not fixed by adhesions; he had not had lung infections during his life.

As I cut the pleura, the seal of the lung cavity broke, and the lung quickly fell away from the chest wall. We were in.

My examination of the pleural cavity was, as expected, unremarkable. His lung surface, speckled by black carbon deposits, glistened with moisture as the operating room lights reflected back in my eyes. His heart, pumping vigorously below, sheepishly guarded by the fragile phrenic nerve coursing across its middle, worked with a furor befitting the engine of this life.

I dissected along the pulmonary artery, gently stripping the pleura away to expose its individual branches, and the anatomy began to unfold. The fissure between the lobes opened easily; the upper lobe was going to separate from the lower lobe nicely. Now, over the top, toward the main pulmonary artery, to expose the first branch: it's a large one, supplying the anterior segment of the upper lobe.

I dissected the adventitia from the main pulmonary artery, and the anterior segment branch began to appear; suddenly warm blood began pouring from somewhere below my scissors.

"Anesthesia, we've got a hole in the pulmonary artery. It's under control, but I'm going to put a stitch into it. Get some blood in here, we may need it.

"Nurse, get me a 5-0 Prolene stitch, I think that will do it. Let's put a pledget on it. I think this artery is fragile, it tore during the dissection.

"Robin," he was my resident assistant, "shine your light in there, I'll need all the light I can get."

As I held pressure over the hole, I could feel the blood beginning to run around the sides of my finger.

Taking my finger off for a second to look again, I could see he was bleeding faster—the tear was growing larger.

"My God, this thing is tearing under my finger. It's getting bigger. This artery is really flimsy. Let's get that blood up here, we need it!"

I had some time now, while we waited for the blood, to plan my attack.

How did I do this? I have never had this complication before. This might be one of those arteries I had heard about: thin, they tear with the slightest pressure. This artery is really fragile. It's tearing, dammit, right under my finger ... less pressure now, while I hold it, or it will tear more. That hole is a centimeter wide. God, it was a millimeter a moment ago. Dammit, the blood is filling his chest, this man may bleed to death right under my nose! I guess there's no one to do this but me. There's no attending surgeon to look to anymore; it's me. Dammit, I wish that blood would get here.

"Let's try to get into the pericardium and clamp the main pulmonary artery. That may slow the hemorrhage. Here, Robin, you hold the clamp here while I cut."

Damn, he is bleeding like hell ... cut here ...

There, there's the main artery, now to slip a clamp around it. God, what if it tears, this artery is so thin. A Debakey clamp, no, it's too rough, it might tear the main artery, God, I'm not sure I could stop it then. A Fogarty clamp, softer, that'll do it. Dammit, this hole is tearing more ... the clamp ... uh ...

"Nurse, give me the Fogarty clamp."

Now ... just slip it in here and ... damn, it won't go, something's blocking it ... damn, I need three hands, I can't do the clamping and hold this hole. If I let go to clamp ... the hole is two centimeters long now, he fills up with blood so fast I can't see. Damn, he's bleeding to death, I can't take my finger away from that vessel, I have to move fast ... he's bleeding ...

"Sucker, give me the sucker! You got the blood, good. Give it.

"Ok, what's his pressure?"

"Seventy systolic, sir."

"Alright, I'm not going to do anything until you get his pressure up, and catch up with him.

"Suck in there, Robin, I need to see.

"I'm going to let you catch up. When you're ready let me know, and I'm going to clamp the main artery just outside the pericardium."

I had a few minutes to think now. Every surgeon needs that time, sometimes. He was still bleeding, but I had reasonable control even though I could see the blood oozing around my finger.

Easy, don't push too hard, you'll tear it more. God, he's bleeding. I hope this damn clamp doesn't tear the pulmonary artery. No way to stop it then. Clamp ... where ... in front, behind ... damn ... I can feel the stress ... I can feel the stress ... I'm healthy ... God, I wouldn't want to be here if I were sixty years old. Heart attack ... yes, Dr. Smithson did last week ... kidney artery got loose ... he had chest pain during the case ... MI ... I'm healthy ... only forty-five ... stress ... I can feel it, I can feel it ... he's bleeding ... God ... that clamp, it's so hard, metal, the artery ... fragile ... if it tears ... can't wait, he's losing too much ... I've got to go, got to take the chance ...

"Give me the Fogarty clamp. Here we go."

Now gently ... around ... through ... there's nothing back there that I can hurt ... gently ... he's filling up ... clamp, slowly ... down, slowly ... click, click, click ... ok ... blood ... none ... click ... ok ... ok.

"Ok, looks ok. Let me have the stitch."

Jesus, this artery is fragile. God, this wall is thin. Can't tear that artery any more. Tie the end of the stitch, this stuff takes so many knots, one, two, three, four, five, six, enough. Now, over, God, thin ... over ... over ... stitch, dammit ... over ... stitch ... over ... God, I hope it holds ... tie it ... one ... two ... three ... four ... five ... so many knots ...

"Ok, better. How's he look, anesthesia—pressure up?"

"Yeah, 110 over 60. Stable."

"You're doing a great job. I think it's under control. I don't see any more bleeding. Thanks folks, I think we got it."

I saw him in the intensive care unit that evening. He was doing well, and still talking confidently of his recovery. He didn't know about the tear, and I saw no reason to tell him. He had flirted with death. I had watched his chest fill with blood from the lethal fountain that came so close to drowning him. He would never know. He had done better than I during that operation: he didn't feel the stress of it all.

It may have been coincidence, but Dr. Hsiao had published his "Special Article" in the *New England Journal of Medicine* that week: "Estimating Physicians' Work for a Resource-Based Relative-Value Scale" (1988;319:835-41). I had read his article, and as a surgeon, I had misgivings about his devaluation of my procedural skills.

Is there really a number to measure the stress I felt today? But more important, isn't it true that all physicians work hard for what they earn? It seems to me that surgeons are just the current target of the government's devaluation of my profession. Don't they devalue all physicians when they devalue any of us?

Dr. Hsiao, I'm sorry you weren't there today when that pulmonary artery let go. Let me invite you to scrub with me on my next thoracotomy. Come with me, and watch the blood swirl through the thin walls of the pulsating vessels. Better yet, tell me if you can, what is your number for the stress I felt today, or do you call it "intensity of service"? Have you ever been there? Tell me if you can, Dr. Hsiao, how does this fit into your resource-based relative "devalue" scale? □

NORTH CAROLINA MEDICAL SOCIETY

Health Watch

VOLUME 50 / NUMBER 7 / JULY 1989

Skin: The Bare Facts

The largest organ of the human body is not the lungs, the stomach, or even the digestive tract, but the skin. Your body's outer layer covers some 20 square feet and weighs around six or seven pounds. It is a remarkable structure that protects the vital organs, keeps the body from dehydrating, regulates the body's temperature, and helps the body rid itself of wastes. Moreover, the skin regenerates itself every 28 days, replacing worn out cells with new ones. In your lifetime, you will shed some 40 pounds of dead skin.

Yet for all of these amazing qualities, the skin is also very sensitive. Indeed, the abuse that we inflict upon our body's largest organ is severe; similar self-destruction of any other bodily system would be unthinkable. Humans are truly unique in the way we purposefully contribute to the destruction of our most precious outer layer.

How it is put together

Human skin is a remarkably complex structure composed of several layers, each with its own functions and characteristics and containing many sublayers. The outermost layer, the **epidermis**, is the body's protective coat. It is made up of 15 - 20 sublayers and it constantly renews itself. The epidermis varies in thickness depending on its location

on the body. Areas of greater friction, like the soles of the feet, are much thicker.

The epidermis is cemented to an inner, thicker layer of connective tissue called the **dermis**. The dermis contains collagenous and elastic fibers as well as a rich supply of blood vessels, glands and nerve endings. It is the connective tissue

"In your lifetime, you will shed some 40 pounds of dead skin."

of the dermis which gives skin its elasticity and resiliency. Not surprisingly, it is the collagen and elastic fibers that break down with age. As the fibers begin to stiffen, the skin wrinkles and loses its elasticity.

Within the dermis are found two of the skin's most important glands. **Sebaceous glands** are connected with hair follicles and are found throughout the skin except for the palms and the soles of the feet. These glands produce an oily substance called **sebum**, which helps keep hair from drying out and becoming brittle and also helps form a protective film to prevent excess evaporation from the skin. When sebum collects in the sebaceous glands of the face, blackheads form. Contrary to popular belief, it is not dirt but the natural color of sebum that gives blackheads their dark color.

From the North Carolina Medical Society, P. O. Box 27167, Raleigh, NC 27611.

Other key glands found in the dermis are the sweat glands, which are found throughout most of the body. Unlike the sebaceous glands, these are most prevalent in the palms and soles of the feet. Each sweat gland consists of a coiled end embedded in the subcutaneous tissue (located beneath the dermis) and a single tube that projects outward through the dermis and epidermis.

Also embedded in the dermis are hair follicles. In most mammals, the function of hair is to provide protection and insulation. Hair on the top of the head helps shield the scalp from sunburn. Eyelashes and eyebrows help keep foreign particles out of the eye. The hair in the nostrils and external ear helps to keep out dust and insects.

The hair also plays an interesting role as a sensory organ. A small muscle called the **arrector pili** is attached to each hair follicle. If it contracts, the hair becomes erect and the follicle is dragged upward. This creates a roughened texture to the skin, commonly known as goose bumps.

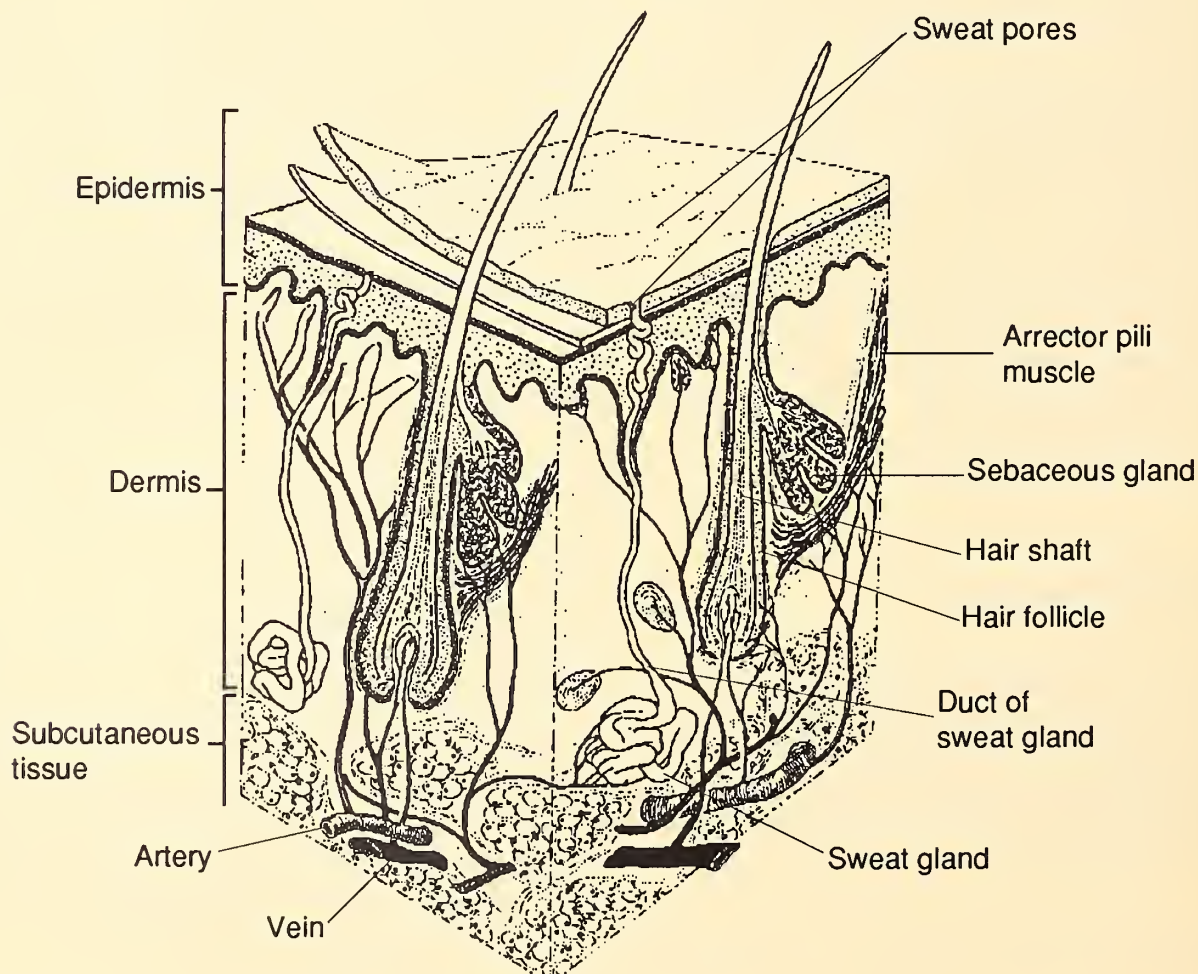
How it works and what it does

The skin helps keep out foreign substances, regulate the body's temperature and shield the internal organs from the sun. Skin also has an immunological role. The skin contains special cells which serve as "sentinels" for the immune sys-

tem. Because they are located at the body's surface, they are among the first cells to come in contact with foreign substances entering the skin. They recognize that certain substances are enemies to the body, and convey this information to the lymphoid system, helping the body get ready to fight off its invader.

Another function of the skin is to help regulate body temperature. If the body is cold and body heat must be conserved, blood vessels contract in quick, successive rhythms, allowing only a small amount of blood to flow through them. When the environment is warm, they contract at longer intervals, providing a free flow of blood. During exercise, when great quantities of generated heat must be expelled, blood flow through the skin is at its peak. The sweat glands pour water onto the surface of the skin, which absorbs body heat as it evaporates. Humans have 2,000,000 to 5,000,000 sweat glands, around several hundred per square centimeter. They are most concentrated on the palms of the hands and the soles of the feet. In addition to cooling the body, sweat glands keep the palms moist - that helps keep the hands sensitive and able to grip.

Skin is also important in regulating blood pressure. The flow of blood can be controlled by the opening and closing of certain vessels in the skin. These vessels allow blood to circulate through the capillary beds or to bypass them by being shunted directly from small arteries to veins.



Diseases of the skin

Despite all of its protective qualities, your skin is very sensitive and is susceptible to a vast array of diseases. One of the most common skin diseases, as any teenager will attest, is acne.

Acne

Acne develops when hair follicles become clogged. The follicle passes various substances to the skin's surface, including sebum and dead cells. The cells sometimes stick together and trap the sebum. Then, bacteria begin to grow in the mass of accumulated cells. As the material continues to accumulate, it pushes against the wall of the follicle and causes it to bulge into a tiny ball. If the follicle wall breaks, and the bacteria, oil, and dead cells irritate the surrounding skin, the result can be a pimple or cyst. The accumulating material may stretch the opening of the follicle - the pore - and the tip of the cells can be seen on the skin's surface. This is known as a blackhead.

Different factors can aggravate acne. One such factor is the hormone testosterone. Testosterone is needed for normal sexual development, but it also helps trigger the sebaceous glands to produce more oil. Thus, in the teen years, when production of testosterone increases significantly, acne tends to be worse. Heredity also plays a role - if both parents had acne you are more likely to experience it as well. Contrary to popular belief, fried foods and chocolate do not cause acne.

Sometimes acne can be so severe that it leaves scars but these can often be treated and cured. Your dermatologist may use a number of different methods to cure acne and its scars. Generally, treatment is designed to reduce the buildup of cells in the follicles, to reduce the oil and bacteria that build up in the first place and to eliminate existing blemishes and scars. Your doctor can recommend the best treatment for your skin type.

Psoriasis

A much more serious skin disease, but one that affects only 2 - 4% of the population is psoriasis. This disease can cause severe disfigurement in adults. The earlier the onset of psoriasis, the worse the disease is likely to become. Its symptoms include the formation of large, dry, silvery scales on the back, knees, elbows, buttocks, and scalp. Removal of the scales may reveal tiny bleeding points known as Auspitz signs. Psoriasis can be treated, through both ointments and oral medications, but complete remission is rare.

Eczema

Dermatitis and eczema are interchangeable terms that refer to an inflammation of the skin. Symptoms range from mild itching to severe blistering. *Nonallergic contact dermatitis* is the skin's response to an irritant, commonly an acid, detergent or solvent. *Allergic contact dermatitis* occurs only in persons who have, after a previous exposure, become sensitized to the offending agent. Some common troublesome substances are nickel, rubber and chromium. *Seborrheic dermatitis* is less common and generally affects the scalp, the face, and areas where skin rubs against other skin (behind the ears, etc.). It is frequently found in infants, where it is known as cradle cap, and is characterized by a yellowish scaling of the scalp. Many types of eczema are treated with medicated shampoos and lotions.

Hives

Many of us have experienced hives. Hives are acute, short-lived reactions that usually itch and remain visible for 30-45 minutes. The reaction is caused by the release of histamine from cellular stores within the skin. Common causes of hives include allergies to shellfish, citrus fruit, nuts and some drugs. Such factors as temperature, exercise and exposure to sunlight may also aggravate hives.

Warts

Warts are not caused by handling frogs or toads. They are caused by a viral infection. Viral warts may affect anyone, but they occur in older children most often. Whether or not they are treated, most warts disappear after several months, although they often reappear. Common warts can be removed easily, and your physician may either cut them off or freeze them with liquid nitrogen. About one-third of all patients treated for warts will get them again. In some cases, physicians treat severe cases of warts with oral medications.

Burns

The effects of burns on the skin are: 1) a large loss of water, plasma and proteins which may cause shock; 2) bacterial infection; 3) slower blood circulation; and 4) a decrease in urine production. A first-degree burn is one in which the damage is restricted to the epidermal layers of the skin, and the symptoms are redness, pain and tenderness. In a second-degree burn, both the epidermal and dermal layers of the skin may be affected, but regrowth of the tissue is still possible. Usually, blisters form on or beneath the skin's

surface and the pain is significant. In third-degree burns, the epidermis and the dermis are not just damaged, but destroyed. The flesh may be charred, and is lifeless and insensitive to the touch. Even with immediate skin grafts, regeneration of third-degree burned skin is very slow and frequently causes disfiguring.

Skin cancer

According to the American Cancer Society, over 500,000 new cases of skin cancer are reported every year, making it the most prevalent form of cancer. Skin cancer is one of the

"...we purposefully contribute to the destruction of our most precious outer layer."

most easily cured cancers when diagnosed and treated early. More importantly, most skin cancer can be avoided. The plain, hard facts of the matter are that the ultraviolet rays of the sun can damage your skin, and repeated, unprotected exposure to the sun is dangerous. If you must be in the sun, cover up and wear an effective sunscreen.

Skin care — helpful hints

- Clean your skin gently, using a soap that will remove dirt and grease without stripping the skin of its natural oils. Use a soap that is right for your skin type. People with dry skin should use a superfatted soap; oily skin can be cleansed with most of the soaps available at the grocery store. In general, the fewer contents in the soap, the less likely your skin will react to an irritant.
- Wash only as needed without drying your skin out. Overwashing will not help an oily skin problem - the skin will just produce more oil to make up for the dryness.
- Don't scrub your face - the skin is too delicate.
- Avoid extremely hot or cold water for washing the face and body. Hot water dehydrates the skin, and cold water does not have any miraculous pore-closing properties.
- Help your skin adjust with the seasons. In winter, use a humidifier to compensate for the dry indoor heat. In the summer, avoid exposure to the sun.
- A balanced diet, plenty of exercise and enough rest will all contribute to a healthy, toned body. □

IN UPCOMING ISSUES

August: MELANOMA — ONE PATIENT'S STORY

September: A DERMATOLOGIST TELLS HOW TO PREVENT SKIN CANCER

October, November, December: SEXUALLY TRANSMITTED DISEASES, INCLUDING AIDS

1990: ARTHRITIS AND JOINT DISEASES • HEARING LOSS • IMMUNIZATIONS • LONG-TERM CARE

Peggy Hansen, M.D.

henry

high explosive,
you stood and spoke,
wan and necessary witness,
of things unspeakable:

a growth unbidden, dark fruit
seeding silent, soon come
seeking precious refuge
in your internal lexicon

a pain uncalled,
a raving thing, and hidden
in those blind spots owned
by susceptible observers—

blue with homeless summer,
your clear eyes dance
as if to promise me
tales of secret paradise,

sweet night thoughts
dissolving my white coat,
your furtive tumor,
in more tender impulse

how then to speak,
call down this detonation
hinged delicate above us
in that small word—

modes of speech,
so nearly brittle,
go nova at this pale rim
of things unknown, things hoped

james

flash of white
teeth of nineteen
true summers,

red corners grudge
and lift
a clouded smile
for us, the harbingers:

scrutiny and banter
biopsies and pains
scans and masses
tales and bulletins—

wild blue marrow
thick blood sludged and crazy
with reckless white impulse,

gamma rays and poisons,
sweet to charm
such killing arrogance

—thin fictions,
we mourn them,
lifeless all

offered up as if mere wishes matter
at this shaded edge
of glassy night

When it comes to
there's no place like



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No one likes being in the hospital. And no one likes paying a big hospital bill. This is especially true for companies and families wrestling with the high cost of health care.

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Baxter

Morphine: Immediate Release vs. Controlled Release

Howard D. Homesley, M.D.

Morphine is the preferred analgesic for alleviation of severe cancer pain because of readily achievable, satisfactory clinical results. Knowledge of appropriate morphine dose, schedule and route of administration is a mainstay of cancer pain control. Morphine is now available in a controlled-release formulation that can be administered to most patients every 12 hours. There are concerns about tolerance, abuse and addiction.

Pain Assessment

The International Association for the Study of Pain has defined pain as follows: "An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage." The majority of oncology patients experience pain from tumor invasion of bone or nerve, or tumor compression which produces discomfort and disability. This leads to a marked decrease in the quality of life. Unfortunately, analgesic therapy can be associated with somnolence, respiratory depression, urinary retention, and constipation, which further complicates the patient's condition and management.

The ideal management of any pain is amelioration of the underlying disease process accompanied by appropriate use of analgesic drugs. Reluctance to prescribe adequate doses of analgesics can lead to prescription of multiple medications. A humane analgesic aim is to provide comfort with whatever regimen is necessary.¹ Individualized pain therapy involves titration of each patient to the optimal dose at the optimal interval. Pain relief can be assessed on a straightforward scale of 0-3: 0 = no pain; 1 = mild; 2 = moderate; and 3 = severe pain. In a similar fashion, pain relief can be moni-

tored: 0 = no relief; 1 = minimal; 2 = moderate; and 3 = complete pain relief. The quality of life is determined not only by presence or absence of pain, but the additional approaches, such as antidepressants, anxiolytics and psychotherapy, where helpful to reach the goal of pain relief, can increase performance status and improve function. A multidisciplinary approach including analgesic drugs, neurosurgical procedures, anesthetic procedures, and supportive care is often required; however, this review will deal primarily with the use of morphine.

Morphine Alternatives

The opioid receptors related to the prototypic agents are listed (table 1, next page).² The Mu receptor for morphine is associated not only with the analgesic effect of morphine but also side effects such as respiratory depression, constipation, euphoria, physical dependence, and drug seeking behavior. There is rapid tolerance to respiratory depression but no tolerance to constipation. This is why it must be stressed that all patients chronically on morphine should continuously receive laxatives. Cross tolerance of morphine with other opioids is incomplete. This explains the effectiveness of other opioids at lower dosages when intolerance to side effects of morphine necessitates a change to another opioid. The receptor differences are the mechanisms for this lack of cross tolerance. Furthermore, unique properties as well as side effects of the opioids are related to these receptor mechanisms whereby similar opioids may express no evidence of constipation, have limited respiratory depression and even no associated dysphoria. The endogenous opioids that are present are impractical for clinical use because of rapid degradation.

All of the opioids have interindividual variation related to individual pharmacokinetics, bioavailability, pain perception and tolerance. Thus, there is no relationship between the pain intensity and the pain relief by the same dose because of

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pharmacokinetic interindividual metabolic variations. Table 2 lists the analgesic potency of oral and intramuscular doses of analgesics compared to morphine.^{3,4}

Codeine is used for mild intermittent pain. Meperidine (Demerol®, Winthrop) is totally synthetic and has anticholinergic action (table 3). This is the least potent opioid, 10% to 20% as potent as morphine. Because of the high lipophilicity, a high concentration can occur in the brain, with the metabolite normeperidine being associated with central nervous system effects. With repetitive dosing, accumulation can occur and hyperexcitability is manifested from the toxic normeperidine; therefore, this drug has limited use in chronic pain.

Table 1
Opioid Receptors and Prototypic Drugs

Receptor	Prototypic Drug
Mu	Morphine
Delta	Enkephalins
Kappa	Ketocyclazocine
Epsilon	—
Sigma	SKA 10,047

Table 2
Analgesic Potencies

Analgesic	Oral (mg)	IM (mg)
Codeine	200	130
Meperidine (Demerol®, Winthrop)	300	75
Methadone (Dolophine®, Lilly)	20	10
Hydromorphone (Dilaudid®, Knoll)	7.5	1.5
Oxymorphone (Numorphan®, DuPont)	6	1
Levorphanol (Levo-Dromoran®, Roche)	4	2
Morphine	20-60	10

Table 3
Morphine Pharmacokinetic Comparisons*

Drug	Oral Dose (mg)	Half-life (Hrs)	Duration of Analgesia (Hrs)
Meperidine (Demerol®, Winthrop)	300	12-16	4-6
Methadone (Dolophine®, Lilly)	20	15-30	6-8
Hydromorphone (Dilaudid®, Knoll)	7.5	2-3	4-6
Levorphanol (Levo-Dromoran®, Roche)	4	12-16	4-7
Morphine (Immediate-Release)	60	2-3.5	3-4
Morphine (Controlled-Release)	60	4-6	8-12

*Age Dependent

Methadone (Dolophine®, Lilly) has a long half-life ranging from 15 to 30 hours and therefore has accumulation potential with toxic consequences. The pharmacokinetics vary widely on an individual basis. An important use of this drug is to treat antiwithdrawal effects.

Hydromorphone (Dilaudid®, Knoll) is shorter acting than morphine, with a pain relief ratio of 1.5:10 to morphine, and has a quicker peak effect than morphine. Levorphanol (Levo-Dromoran®, Roche) is a morphine congener that has a long half-life of 15 to 30 hours and an intravenous half-life of 11 hours.

Heroin has fewer side effects and improves mood. It is twice as potent as morphine with a fast onset of action and shorter duration. Small volumes can be used for injection but there are no clinical advantages of heroin over morphine.⁵

Anticonvulsant agents such as carbamazepine (Tegretol®, Geigy), phenytoin (Dilantin®, Parke-Davis), valproic acid (Depakene®, Abbott), and clonazepam (Klonopin®, Roche) have beneficial effects combined with analgesics.^{3,6} The use of analgesics postoperatively in the cancer patient is similar to the noncancer patient in that up to 15% need no analgesia while 10% to 15% have severe pain regardless of dose and regimen used.

It is evident when comparing other opioids to morphine that meperidine is less potent orally but does have a longer half-life with similar duration of analgesia. Levorphanol requires a much smaller oral dose for equianalgesia with a longer half-life but similar duration of analgesia. Hydromorphone is quite similar to levorphanol except for the short half-life, compared to methadone, which has a long half-life and longer duration of action.⁷⁻⁹

Morphine

For management of pain in the oncology patient, morphine is widely used because of its predictable bioavailability of 35% to 75% and its predictable two- to three-hour duration of action.

Fortunately, some patients continue to require the same dose for many months, as long as there is no increased severity of pain. There is a definite decreased dose requirement with age, but there is no linear relationship between the dose and analgesia achieved.⁴ Pain always is the guideline for the dose needed.

The intramuscular to oral potency is approximately 1:6, which does decrease to 1:3 with chronic administration. Following the oral administration, there is the first pass effect of 70% of the drug dose with hepatic blood flow and removal before reaching the systemic circulation. The peak effect is within two hours but there is

interindividual variation. The oral absorption is approximately 35% of that which could be achieved by parenteral administration. Intravenous administration provides a high clearance rate but there is pronounced interindividual variation with a half-life of 1.7 to 4.5 hours. There is limited bioavailability by other routes of administration such as sublingual, buccal, intranasal, subcutaneous, intrathecal and epidural. Sublingual dosing has an advantage in that this simulates parenteral dosing, which achieves systemic effects and avoids first pass effects to the hepatic circulation with a fast onset of analgesia. Disadvantages are taste, ulceration, and local irritation. Aqueous morphine often can enable avoidance of parenteral injections, is well absorbed, and repeat dosing provides a steady state. A wide dose range is effective and most patients can be controlled with aqueous morphine.

Rectal medication is available, as is rectal hydromorphone (Dilaudid®, Knoll), and oxymorphone (Numorphan®, DuPont). Rectal doses are similar to oral doses. If the patient is unable to swallow, then rectal suppositories can be useful. If patients are too sedated on one opioid, then another might be substituted.

Indications for continuous morphine intravenous infusion occur when repetitive dosing at close intervals is required and when rapid titration of analgesia is needed (table 4). Usually if morphine is required more often than every two hours, then continuous intravenous infusion is indicated. Intravenous morphine should not be given initially merely for pain relief, as tolerance more rapidly develops with intravenous use.

The most common side effect with intravenous morphine is sedation (47%) followed by confusion (20%). Other side effects are nausea, vomiting, constipation, and respiratory depression. Approximately 30% of patients will have no major side effects. Preservative-free morphine must be used, as chlorobutanol in the morphine sulfate diluent will cause sedation. There is incomplete cross tolerance associated with intravenous administration, and if there is inadequate analgesia or intolerable side effects, the analgesic must be changed.

Tolerance is much more rapid with intravenous administration of drug, but there is rapid respiratory depressant tolerance. Pain can escalate as disease progresses and receptor response is altered.

There is cross tolerance between systemic and spinal opioids leading to a high failure to spinal therapy if the patient has been on a high dose of morphine. If there has been more advanced disease or nerve involvement then the spinal analgesia will be unsuccessful. There are chronic side effects from intrathecal morphine such as dry mouth, drowsiness, sweating, itching, nausea, vomiting and urinary retention.

Controlled-Release Morphine

The ideal analgesic for chronic pain should be effective on a convenient dosage schedule, be void of drug fluctuations, maintain prolonged effective levels, be devoid of accumulation, and have minimal adverse effects. Oral controlled-release morphine (MS Contin®, Purdue Frederick) is formulated to be released at therapeutic levels over a 12-hour interval and is currently available in the United States in 30 and 60 mg tablets. A recent dose ranging study of controlled-release morphine in patients with chronic pain assessed efficacy in stable patients requiring chronic analgesic who were compliant, rational and capable of subjective pain evaluation.¹⁰

The patients were first converted to an analgesic level of immediate release morphine (table 5). After the patients were titrated to maintenance levels of analgesia over a 24- to 48-hour period, they were converted to controlled-release morphine, 30 to 60 mg every eight hours. If they could not be maintained at a maximum of 60 mg for every eight hours, they were considered a failure. Finally, they were progressed from an eight-hour to a 12-hour dosing interval and were held at the lowest dose for the longest interval for two to four weeks.

The patients kept daily records on analgesic effectiveness and adverse reactions, and reported other medications

Table 4
Guidelines for Continuous Morphine Intravenous Infusion

- 1 Calculate intramuscular equivalents per 24 hours.
- 2 Infuse over 24 hours.
- 3 Infuse one-half of new dose per 24 hours.
- 4 Give one hour loading bolus.
- 5 Vital signs every 30 minutes x four hours.
- 6 Increase 10% to 20% and give rescue dose as needed.
- 7 Give medication for side effects or switch to other analgesic.

Table 5
Titration to Immediate Release Morphine

Drug	Regimen	IRMS* (mg)
Percocet® (DuPont), Percodan® (DuPont), Tylox® (McNeil)	1-2 q. 3-4 hours	15
Levorphanol (Levo-Dromoran®, Roche)	2 mg q. 3-4 hours	30
Codeine	100 mg q. 3-4 hours	30
Hydromorphone (Dilaudid®, Knoll)	2 mg q. 3-4 hours	30
Methadone (Dolophine®, Lilly)	10 mg q. 4-5 hours	30

*Immediate Release Oral Morphine Sulfate every four hours

that they were taking. By regular telephone assessment, pain was rated on a scale of 0 to 4, confusion on a scale of 0 to 4, and drowsiness on a scale of 0 to 3. Patients' experiences of gastrointestinal and other side effects were solicited. A global pain rating of excellent to poor relief was recorded by the patient. The patient's daily rating was monitored with a visual analog scale of no pain to the worst pain possible. Breakthrough pain which occurs just before the next dose of drug was uncommon once pain control was stabilized. Incidental pain which occurs sporadically, such as when the patient travels a long distance, still required supplementation with a short-acting opioid.

The conclusions in this study were similar to those of another study in which the controlled-release morphine was effective and convenient, prevented breakthrough pain, and had a prolonged steady plasma concentration with no accumulation properties.¹¹

The 12-hour schedule for home and hospital is simple and increases compliance. There are fewer missed dosages with less breakthrough pain for 12 hours. The maximum acceptable morphine dose for breakthrough pain is one-fourth of the scheduled 12-hour dose, and if more is necessary then the 12-hourly dose should be increased. There is no four-hour interruption for medication at night, so the patient regularly gets a full night's sleep. The small tablet is well accepted. Low street abuse for the controlled-release morphine would be anticipated because the slow release is not associated with the higher peak levels of immediate-release morphine.

Methadone has a longer half-life of 15 to 30 hours with a shorter duration of analgesia of six to eight hours (table 3). Because of these properties, accumulation of undesirable high levels of methadone can occur based on the different pharmacokinetics.

Precautions in the use of controlled-release morphine are similar to those used with immediate-release morphine. As long as careful dosing is used initially, dosing which is based on equianalgesic comparisons (table 2), oversatiation should be minimized. This balance can be further adjusted by providing supplemental immediate-release morphine for breakthrough and incidental pain while on an initial total controlled-release dose one-half to one-third less than the anticipated need. It may take persistence, but most pain can be controlled by increasing the dose rather than decreasing the dosing interval to eight to 10 hours. The risk of accidental overdosing among the elderly with controlled-release morphine would be similar to the risk with immediate-release morphine. Impaired hepatic or renal function would be cause for careful titration of controlled-release morphine up to effective levels.

Tolerance, Abuse and Addiction

Tolerance is the need for increased dose of drug for analgesia over time.³ Physical dependence is distinguished by an

associated withdrawal reaction. There can be psychological dependence or, in addition, a craving for the drug leading to drug abuse. It is rare for oncology patients to have psychological dependence or addiction unless this has preceded the diagnosis of cancer. Often when other methods of relief for the primary source of the pain are effective, analgesics can be rapidly withdrawn without evidence of a withdrawal reaction, or at least there is a rapid decrease in need for the analgesics.

Tolerance is decreased pain relief duration with increased dose. The rate of tolerance varies. For management of tolerance, one has to either increase the dose and frequency of the opioid or add to the opioid a nonopioid such as a nonsteroidal anti-inflammatory drug. With incomplete cross tolerance, changing analgesics upon early recognition of tolerance may be advantageous. The usual change would be to switch to another opioid at one-half the equal analgesic dose but with ready access to rescue analgesic doses as needed. For detoxification of physical dependence, one-fourth of the analgesic dose is used. Again, physical dependence is defined by withdrawal reactions; addiction is defined as a compulsive need to secure a drug supply with high relapse. One can be physically dependent, yet not an addict. With increased pain the patient requests an increase in dose, which leads to increased tolerance.

Summary

One must ever focus, in the oncology patient, on the possible treatable etiologies of pain which might be amenable to radiotherapy, chemotherapy or surgery. The first goal is to accurately diagnose the source of the pain and then, only if other active intervention is unhelpful, administer analgesic therapy. The use of controlled-release morphine administered at regular 12-hour intervals offers an additional method of providing prolonged comfort with the associated overall improvement in quality of life of the cancer patient. □

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Reference: 1. Data on file, Burroughs Wellcome Co.

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Please see brief summary of prescribing information on next page.



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ZOVIRAX[®]

(acyclovir) capsules

Daily therapy helps keep patients lesion-free longer*

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk consideration in specific disease categories:

First Episodes (primary and nonprimary infections—commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS—Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established (see CLINICAL PHARMACOLOGY—Microbiology).

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility:

Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficacy but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F₁ generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recov-

ery of sperm production was evident 30 days post-dose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day i.v. for one month.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rabbit (50 mg/kg/day, s.c. and i.v.) or in standard tests in the rat (50 mg/kg/day, s.c.). In a non-standard test in rats, fetal abnormalities, such as head and tail anomalies, were observed following subcutaneous administration of acyclovir at very high doses associated with toxicity to the maternal rat. The clinical relevance of these findings is uncertain. There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in standard animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS—Short-Term

Administration: The most frequent adverse reactions reported during clinical trials of treatment with Zovirax Capsules were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments with Zovirax Capsules (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease:

One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment:

One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73 m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"—Bottles of 100 (NDC-0081-0991-55), and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light and moisture.

U.S. Patent No. 4199574

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.



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Edward C. Halperin, M.D., Book Review Editor

Clinical Gynecologic Oncology, by Per Kolstad. Norwegian University Press, 1986, 247 pages.

Reviewed by Gustavo S. Montana, M.D., Box 3085,
Duke University Medical Center, Durham 27710.

Most of the gynecological oncology books published in recent years have been edited by one or two well known authors with contributions from different experts in the field. Such books may be uneven both in writing style and in the depth of coverage of the different chapters. A book written by a single author, such as this book, is generally more balanced and uniform. *Clinical Gynecologic Oncology* is well written and even in content and style. Furthermore, this book is authored by an individual who has devoted all of his illustrious professional career to the management of patients with gynecological malignancies.

The book is based largely on Dr. Kolstad's experience in a single institution—The Norwegian Radium Hospital—which has cared for a very large number of patients with gynecological malignancies. Of immense value is the fact that the treatment policies, on which his experience is based, have been quite uniform over the years—although they changed as new information became available. The followup of the patients has been excellent and this also enhances the credibility and value of the book. Lastly, Dr. Kolstad had truly multi-disciplinary training. He has a very broad view of the benefits and limitations of surgery, radiation therapy, and chemotherapy. This makes this book and the experience reported therein unique and unlikely to be duplicated anywhere in the world except in large referral centers such as the Norwegian Radium Hospital.

Dr. Kolstad's book has several outstanding chapters, but particularly worthy of mention is the chapter on cervical intra-epithelial neoplasia. This chapter presents an excellent discussion of the problem with very practical management recommendations. Treatment of early stage carcinoma of the cervix at the Norwegian Radium Hospital is based on the use of radiation therapy and surgery as used in several institutions throughout Europe. This is different from the approach used in the United States, but the results are quite comparable to those obtained with either radical surgery or radical radiation therapy. This chapter has a rather detailed descrip-

tion of the surgical procedure accompanied by well illustrated photographs. I believe that this chapter is particularly useful for surgical gynecologic oncologists. There is a very good discussion of lymphangiography for carcinoma of the cervix accompanied by good illustrations and radiologic-surgical correlations of lymphangiography. Unfortunately, the reader is left without a clear recommendation as to the indications for lymphangiography. Although computerized tomography and magnetic resonance imaging have been available for several years, there is no discussion about these diagnostic tests.

Worthy of note is the excellent discussion on the background and epidemiology of carcinoma of the ovary. The management of carcinoma of the ovary is weighted towards the use of chemotherapy instead of radiation therapy. This approach remains controversial.

This book has a very good mix of tables, graphs, and photographic illustrations. The tables and graphs are very clear and useful. Some of the black and white photographs could have been better labeled to point out details that are otherwise difficult to appreciate. All the references are placed at the end of the book, which is somewhat inconvenient. The references rely heavily on the European literature.

In summary, this is a very worthwhile book that can be used as a reference source for the common and uncommon gynecological malignancies. I believe that this is a book that every oncologist dealing with gynecological problems should have at his/her disposal. It is not directed toward the practicing gynecologist who participates infrequently in the management of gynecological malignancies.

Diagnosis and Management of Breast Cancer, by M.E. Lippman, A.S. Lichter, and D.N. Danforth, Jr. Philadelphia: W.B. Saunders Co., 1988, 586 pp., 140 illustrations.

Reviewed by Margaret L. Bertrand, M.D., Director,
Bertrand Diagnostic Imaging and Breast Center, 1309-
11 North Elm Street, Suite 9, Greensboro, NC 27401.

Presented in 586 pages, *Diagnosis and Management of Breast Cancer* is truly the "everything you always wanted to know about breast cancer and more" textbook. At \$60 a copy, I consider it a bargain, useful as a reference source and as a book that can be read chapter by chapter, an interesting and complete overview of the subject of breast cancer from epidemiology to oncogenes.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

The last ten years have shown rather dramatic changes in recommendations for both diagnosis and treatment of breast cancer. This work includes a brief but complete presentation on screening mammography, detailed history and evolution of surgical treatment of breast cancer, including breast conservation surgery and reconstructive surgery, as well as an up-to-date presentation of radiation and chemotherapy as primary and adjunctive modalities of therapy. There are also chapters on the management of locally advanced tumors and metastatic disease. Considerable attention is given, in separate chapters, to psychosocial aspects of breast cancer and to appropriate nursing care of the breast cancer patient.

Breast cancer is the leading female cancer, involving one in ten women. In 1988, there were an estimated 135,000 new cases of breast cancer and 42,000 fatalities. This disease now has or should have the attention of all physicians who treat the female population. *Diagnosis and Management of Breast Cancer* is a timely, well-organized, balanced text. It should be required reading for all radiologists, breast surgeons, oncologists, radiation oncologists, and oncology nurses. It is recommended reading for gynecologists and family practitioners who wish to maintain a knowledgeable professional involvement with their breast cancer patients during treatment, recovery, and follow-up. □

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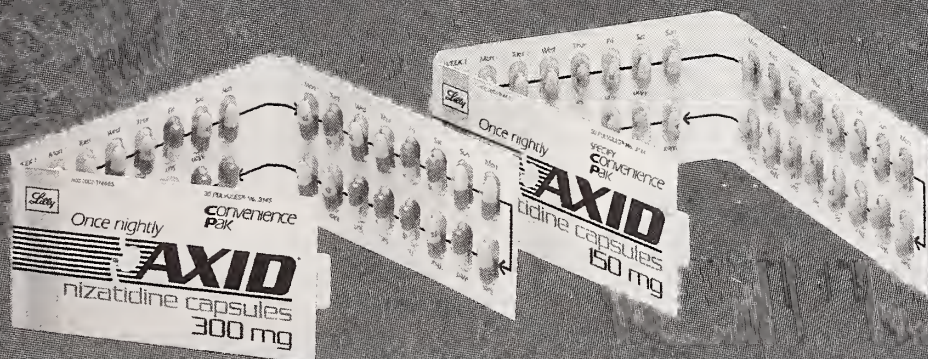
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Brief Summary

Consult the package literature for complete information.

Indications and Usage: Axid is indicated for up to eight weeks for the treatment of active duodenal ulcer. In most patients, the ulcer will heal within four weeks.

Axid is indicated for maintenance therapy for duodenal ulcer patients at a reduced dosage of 150 mg h.s. after healing of an active duodenal ulcer. The consequences of continuous therapy with Axid for longer than one year are not known.

Contraindication: Axid is contraindicated in patients with known hypersensitivity to the drug and should be used with caution in patients with hypersensitivity to other H₂-receptor antagonists.

Precautions: General — 1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Because nizatidine is excreted primarily by the kidney, dosage should be reduced in patients with moderate to severe renal insufficiency.

3. Pharmacokinetic studies in patients with hepatorenal syndrome have not been done. Part of the dose of nizatidine is metabolized in the liver. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests — False-positive tests for urobilinogen with Multistix[®] may occur during therapy with nizatidine.

Drug Interactions — No interactions have been observed between Axid and theophylline, chlorazepoxide, lorazepam, idocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450-linked drug-metabolizing enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increases in serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility — A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy — Teratogenic Effects — Pregnancy Category C — Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect, but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus and at 50 mg/kg it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers — Studies conducted in lactating women have shown that <0.1% of the administered oral dose of nizatidine is secreted in human milk in proportion to plasma concentrations. Caution should be exercised when administering nizatidine to a nursing mother.

Pediatric Use — Safety and effectiveness in children have not been established.

Use in Elderly Patients — Ulcer healing rates in elderly patients are similar to those in younger age groups. The incidence rates of adverse events and laboratory test abnormalities are also similar to those seen in other age groups. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of nizatidine included almost 5,000 patients given nizatidine in studies of varying durations. Domestic placebo-controlled trials included over 1,900 patients given nizatidine and over 1,300 given placebo. Among reported adverse events in the domestic placebo-controlled trials, sweating (1% vs 0.2%), urticaria (0.5% vs < 0.01%), and somnolence (2.4% vs 1.3%) were significantly more common in the nizatidine group. A variety of adverse events were also reported; it was not possible to determine whether these were caused by nizatidine.

Hepatic — Hepatocellular injury, evidenced by elevated liver enzyme tests (SGPT [AST], SGPT [ALT], or alkaline phosphatase), occurred in some patients and was possibly or probably related to nizatidine. In some cases, there was marked elevation of SGPT, SGPT enzymes (greater than 500 IU/L) and in some instances, SGPT was greater than 2,000 IU/L. The overall rate of occurrences of elevated liver enzymes and elevations to three times the upper limit of normal, however, did not significantly differ from the rate of liver enzyme abnormalities in placebo-treated patients. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular — In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS — Rare cases of reversible mental confusion have been reported.

Endocrine — Clinical pharmacology studies and controlled clinical trials showed no evidence of androgenic activity due to Axid. Impotence and decreased libido were reported with equal frequency by patients who received Axid and by those given placebo. Rare reports of gynecostasia occurred.

Hematologic — Fatal thrombocytopenia was reported in a patient who was treated with Axid and another H₂-receptor antagonist. On previous occasions, this patient had experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental — Sweating and urticaria were reported significantly more frequently in nizatidine than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity — As with other H₂-receptor antagonists, rare cases of anaphylaxis following administration of nizatidine have been reported. Because cross-sensitivity in this class of compounds has been observed, H₂-receptor antagonists should not be administered to individuals with a history of previous hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other — Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine administration have been reported.

Overdosage: Overdoses of Axid have been reported rarely. The following is provided to serve as a guide should such an overdose be encountered.

Signs and Symptoms — There is little clinical experience with overdosage of Axid in humans. Test animals that received large doses of nizatidine have exhibited cholinergic-type effects, including lacrimation, salivation, emesis, miosis, and diarrhea. Single oral doses of 800 mg/kg in dogs and of 1,200 mg/kg in monkeys were not lethal. Intravenous median lethal doses in the rat and mouse were 301 mg/kg and 232 mg/kg respectively.

Treatment — To obtain up-to-date information about the treatment of overdose, a good resource is your certified regional Poison Control Center. Telephone numbers of certified poison control centers are listed in the Physicians' Desk Reference (PDR). In managing overdosage, consider the possibility of multiple drug overdoses, interaction among drugs, and unusual drug kinetics in your patient.

If overdosage occurs, use of activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance.

PV 2096 AMP

[013089]

Additional information available to the profession on request.

To Knock on Poverty's Door

The Story of Evylyn D.

William V. Yount

When her husband is home to drive her, and their prehistoric Lincoln starts on the first attempt, Evylyn D. lives no more than two minutes from her doctor's office. If things are going well she visits with him once a month; if not, once a week. At home, she has a medicine bag containing roughly 20 multi-colored bottles she calls her "pharmacy" and a few simple gadgets to monitor various aspects of the state of her health on a daily basis. These things and a few phone calls with her doctor tide her over between visits. In a good year, she may only end up in the hospital twice. At the very least, modern medicine has an overwhelming impact on the life of Evylyn D.

Evylyn's largest problem is that she has so many justifiable organic complaints, ailments, disorders, and diseases that she could leave even the most patient and skilled family practitioner exasperated and baffled as to where to begin. Throw in a good dose of depression, apparent psychosomatic tendencies, and a social history that reads like a tragedy on her part as well, and you might have what some family doctors would refer to as a "typical" patient, others a challenge, and still others a nightmare. My host M.D. in the busy North Raleigh practice I visited chuckled as he decided to let Mrs. D. bend my ear for a while. The way he fondly described her, it sounded like she ate first-year medical students for lunch.

Evylyn's appearance reads like her chart. She is a 55-year-old white female of a very low socioeconomic status. Chronically obese since childhood, she appears worn-down, sleepy, and sad. Life weighs heavy on her shoulders. Time has thinned her chestnut brown coiffure. Experience has left bags under her eyes, behind the rose colored glasses low on her nose.

Most of her medical complaints appear to relate to her weight problem. She suffers from hyperlipidemia, hypercholesterolemia, hyperglycemia, and hypothyroidemia. She had a heart attack at age 37 and a laminectomy five years later which failed to relieve her chronic back pain. She is an insulin-dependent, type two diabetic on shots twice a day. She says the shots are not nearly as bad as having to "check her sugar" up to eight times daily; that leaves the tips of her fingers sore and swollen.

Immobilized by her own body, mind, and environment, Evylyn has spent much of her life monitoring, but unable to solve her health problems, in a world north of Raleigh with a 50-mile radius and her armchair and black-and-white television in its center. As if life had not dealt her enough of a blow with her health, she joins far too many others trapped in the vicious circle of poverty in America. Just as it has been difficult, if not impossible, at times for her to physically get out of her armchair and attempt to walk off some weight and build some strength, it remains an equally overwhelming, if not unimaginable task for her to mentally lift herself out of the uncomfortable armchair of poverty.

That is where I found Evylyn D. shortly before Christmas 1988. I knocked on the door of poverty and, as I waited to be let inside for a little while, I turned to realize that my car did not have enough rust on it or dents in it to appear to belong to this parking lot. As I heard someone cough while fumbling with several locks and bolts, I remember being thankful that I had not worn a coat and tie. I laugh at that thought now, because it was so trivial—every part of me did not look like it came from or belonged there. I was simply an accidental tourist in a world I drove by almost every day. The white coat of medicine was my return ticket to the other side of this door, but I was not wearing any white this day. I wondered if I had any rights as a stranger to be a temporary voyeur under "educational" auspices, to touch lives and vanish, to start something I could not finish. As Mr. D. opened his door for me and greeted me with a smile, I realized his too was a nervous smile.

From 201 Howell St., Apt. 6A, Chapel Hill 27514. Mr. Yount is the 1989 winner of the North Carolina Medical Society's Medical Student Section Annual Essay Contest. This is his winning essay.

Evylyn was in her armchair already and her husband sat down and returned his slippered feet to the fresh impressions in his matching recliner. The television in front of both of them was off; they had been waiting for me. Almost immediately Mr. D. began to twitch and talk. During the duration of my two-hour visit I could keep time by the jerky movements of his left hand and right foot, and if I wanted to hear what Evylyn had to say I had to address her by name. The woman who had spoken so openly to me in the Doctor's office quietly and listlessly submitted to her husband's version of her story.

Before either of them could speak, a lit cigarette parted their lips. I added the bobbing of the cigarettes in their mouths to the short list of movements in the living room during the duration of my stay. As Mr. D. bobbed and twitched, he told me that he was actually the third Mr. in Evylyn's life. Her first husband was an alcoholic and had beaten Evylyn several times before leaving her. First married at sixteen and penniless, single mother of three boys by age twenty-one, she gave up her eighteen-month-old baby for adoption in order to obtain work and support herself and the two older boys. Ten years later, she tried marriage again. It worked well this time until her husband was shot and killed during an argument with his brother. Even Evylyn's third husband admitted that things had not always run smoothly for the two of them. He had recently returned to Evylyn after a three-month separation during which he maintained that he "got on and stayed on the wagon." I took that to mean that he was, at best, a recovering alcoholic himself. At no point during the unveiling of this tragic journey through life did Evylyn disagree with her husband on the facts. Unemotionally, she even colored in the details. It was as if she had gotten used to the fact that fate never smiled on her. With so much "bad" in her life, she was afraid of the good.

I did manage to coax a smile out of Evylyn, though, when I mentioned the unavoidable battery of family pictures on top of the omnisciently silent television set. She proudly told me how all of her sons were preachers in the area, even the one she had put up for adoption. He had tracked her down several years ago and they had since become good friends. A total of eight lovely grandchildren and their parents smiled across the room at me and I wondered if these people saw what I saw here behind this door, or if they too had never had the chance to open it and look in from the outside.

Interspersed among the family portraits and on the walls of the living room were several pastel-colored religious figures and a few plush, velvet depictions of biblical events. On the coffee table a rather ornate and dusty family bible lay opened to Genesis. I asked Evylyn if she ever went to see her sons preach. She quickly said she had and liked to, but Mr. D. would "have none of it." It was time for another question.

Since she had not worked since the early seventies when she had a job in a photo lab, I was curious how she spent her days. She responded matter-of-factly that she had the "soaps to keep her company" and that she kept in touch with her friends by phone since she "couldn't get about so well." And, of course, there were always her "sugar readings" and doctor's visits to break up the days and weeks and months at home.

Evylyn's husband worked nights for a French electronics company repairing "some gismo in a phone's innards." He wanted to work days, but his much younger boss tried to convince him that he was most needed on the late shift. Mr. D. wanted to quit and get a job in rural delivery with the post office. With the extra money that would bring in, he could afford to get a membership at the local YMCA so that Evylyn could carry out the part of her treatment regimen she enjoyed most—water aerobics.

Evylyn, however, was leery of any and all change in their lives at this point and weakly insisted that her husband stay where she knew a paycheck would come in every month. Luckily for both of them, Medicare covered much of their health-related expenses to this point. Evylyn's doctor was taking only what Medicare offered, if that, and filled many of Evylyn's prescriptions with samples.

Without warning, Mr. D. gently informed me that it was time for Sunday dinner at Golden Corral. Not wanting to disturb this couple's routine further, I added my Christmas gift and token of appreciation to the two modest gifts—one red, one green—under the white table-top tree. In the doorway, Mr. D. pointed to a pick-up full of Hispanics and told me how they were going to run good folk like themselves out of the neighborhood. I agreed, bid them well, and left them in their armchairs. The door clicked shut. □



William V. Yount (right) accepts First Prize notification for this essay from Christopher Jones, 1988-89 President of the Medical Student Section of the North Carolina Medical Society.

Letters to the Editor

Rocky Mountain Spotted Fever

To the Editor:

This letter is written in regard to the recently published study entitled "Rocky Mountain Spotted Fever Versus Viral Syndrome: A Management Approach in a Primary Care Setting" by Drs. Rizzolo and Addison (NCMJ 1989;50:181). There are several important issues raised by this publication.

The criteria for selection of patients who receive Tetracycline therapy are not given in the publication. Clearly, selection was used as it seems probable that more than 48 febrile patients would have been seen in the designated period of time. Since febrile illnesses are more common in children, were the criteria the same in children as adults? How many children are cared for in this practice and how many children were actually treated?

An epidemiologic study conducted in Rowan and Cabarrus Counties in North Carolina¹ suggested that of the almost 500 febrile patients only one-fifth of them could be shown to be infected with *R. rickettsii*. Therefore, it is very likely that a minimum of four uninfected patients will receive Tetracycline for every infected patient.

The authors found no evidence of infection by antibody determination in those patients who were tested. There are no data to suggest that the administration of appropriate therapy (Tetracycline) after the onset of symptoms is capable of ablating an antibody response as measured by methods other than complement fixation. Therefore in this study, it is possible that all 48 persons received Tetracycline and none of them had Rocky Mountain Spotted Fever. Can the authors justify administration of drug inappropriately to this large number of persons?

I too share the concern and acknowledge the need for recognition and treatment of Rocky Mountain Spotted Fever. However, the authors made note that in the Hattwick article² which they cited, death prior to four days of symptoms is exceedingly unusual. This does provide the responsible physician with the opportunity to make a decision one or two days into the illness and suggests that patient response will not be compromised.

Several of the clinical features are worth mentioning. In the North Carolina study, rash was present during the first three days of illness in under 50% of cases. Only 12% of cases never developed a rash. Of importance is the observation that persons older than 15 years of age, and particularly middle to older age adults, were more likely to have atypical illness than children. Rash occurred less frequently in this age group. Adult patients also come to the physician less readily than parents bring their children. These features

combine to mean that an adult patient may be seen somewhat later than a younger patient, with an atypical illness, and without rash. Presumptive therapy for Rocky Mountain Spotted Fever may be necessary. However, if therapy is to be administered to all febrile adults, criteria including time factors should be established. It is also important to take into consideration differences between children and adults such as the frequency of febrile illnesses, presentation of illness, and drug toxicity before making a general recommendation concerning the administration of Tetracycline therapy.

Catherine Wilfert, M.D.

Professor of Pediatrics and Microbiology
Duke University Medical Center
Durham 27710

References

- 1 JID 1984;150:469.
- 2 JAMA 1978;240:1499.

Response from Dr. Rizzolo

To the Editor:

This is response to the letter to the Editor with reference to my article in the April issue of the journal, concerning "Rocky Mountain Spotted Fever." Dr. Catherine Wilfert raised several questions which I would like to address individually.

In terms of study admission criteria, individual physicians treating patients within the Family Practice Center made the decision whether to treat or not to treat in patients presenting. If after careful clinical and laboratory evaluation the cause for the fever could not be determined, those individuals were treated for Rocky Mountain Spotted Fever. It was further stressed that such individuals should be treated on or before the fourth day of febrile illness. Our data revealed that of 48 treated patients only five were treated beyond the fourth day of febrile illness.

Regarding the total number of patients who were seen for fever during that two-year period, the writer is quite right in that a much larger number of people presented with fever than were treated empirically for Rocky Mountain Spotted Fever. We did not in our study track those individuals so I cannot give you the "denominator." You could assume that in a practice of 8,000 patients, including pediatric patients, a considerable number of individuals over the two-year period did in fact present with fever. It's apparent that clinicians with careful history taking, physical examination, and observation over time are usually able to determine a reasonable cause of febrile illness in both children and adults.

The fact that none of the 48 treated patients developed titer changes positive for Rocky Mountain Spotted Fever does not necessarily mean that none of them had Rocky Mountain Spotted Fever. Several authors including Walker and Bradford, cited in our bibliography, state that early treatment with antibiotics may delay antibody formation. Furthermore, discussions with experts on Rocky Mountain Spotted Fever at the CDC indicate that it is not uncommon for diagnostic changes in titers to occur much later than the usual 10 to 14 days when convalescent titers are usually drawn. Furthermore, of the 48 treated patients only 27 returned for convalescent antibody titers. One or two potential Spotted fever patients may well have been in the group that did not return for follow-up titers.

We, too, are concerned about over-treatment of individuals—especially children. This did not prove to be the case in our study. We believe that with careful clinical evaluation, others should obtain similar results.

Peter J. Rizzolo, M.D.
Department of Family Medicine
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Campus Box 7595
Chapel Hill 27599-7595

An anthropological note

To the Editor:

I am writing in reference to Dr. R. Bradley Thomason's article which appeared in the April Issue (Third World surgical rotations: one resident's perspective. NCMJ 1989;50:218-22). I very much enjoyed his interesting and well written article.

Dr. Thomason's caption for the photograph of the woman with elongated ear lobes states that the woman is a Luo. This is incorrect as the Luo never engaged in this practice. The woman is actually a M'Kuria, a member of an ethnic group that shares the North Mara area of Tanzania with the Luo. Both Kuria men and women once routinely stretched their ear lobes and the women wore large brass coils in them.¹

Pascal James Imperato, M.D.
Editor

New York State Journal of Medicine
Lake Success, New York, 11042

Reference

1 Imperato PJ. Bwana Doctor. London: Jarolds, 1967, p. 96.

Yes, Your Honor

To the Editor:

Readers of the Journal and members of the North Carolina Medical Society might be interested in the following documentary, which is self-explanatory.

On Thursday, April 27, 1989, I was cited for contempt of court for taking care of seven emergencies in a medically deprived area in Belhaven (Beaufort County) while actively

serving as juror in Beaufort County Civil Court. These emergencies consisted of a patient in active labor, an 11-year-old child with fractured and dislocated jaws, a patient with anaphalaxis with swelling face and tongue, a patient with acute heart failure, a hemorrhaging female and several others.

I had been previously denied a request to be excused as juror by Judge Hallet Ward. The request was based on overwhelming medical obligations to thousands of patients in the service area.

In the midst of caring for the several emergencies at hand, I was ordered by Judge William Griffin to report immediately or contempt of court proceedings would be initiated. I had responded earlier and timely and indicated that I would report immediately after caring for my patients. After handling all emergencies at hand and without making rounds on numerous hospitalized patients, I arrived in court only two hours late. Judge William Griffin openly criticized me for being late and for "perpetrating" the emergencies. He continued to berate my public service to the people of Beaufort and Hyde Counties, for being Mayor and for serving as Doctor of the Day for the General Assembly which he described as "playing in the legislature." No effort was ever made by Judge Ward or Judge Griffin to document my service in behalf of those needing medical care at any time.

State statutes are very specific in denoting that any individual providing critical services for the health and welfare of citizens may be excused from serving as a juror by the reviewing judge. The real problem is, therefore, not in our laws but in those who fail to exercise proper judgment in interpretation of the laws.

I have never questioned the authority of the court, but in this case, do question the judgment of those who were in control—Judge Hallet Ward and Judge William Griffin—for they have abrogated their responsibility to the people of Eastern Beaufort and Hyde Counties while proclaiming the authority of the court.

Yes, I was found in contempt of court for not leaving my patients unattended upon a direct order from the Judge and was fined \$500. After the contempt hearing, I waited another three hours only to be told that my services were no longer needed, and the fine could be paid later. During the latter hours of this melee, the only other doctor in this area was called as a witness, and I was ordered by the Judge to remain in Belhaven until his return.

There obviously is something wrong in this judicial district, and it is not with a doctor who has honored a commitment to provide emergency care for patients in need. The law must be obeyed, but good judgment and common sense must somehow prevail.

As a physician I did what I had to do in the care of my patients. What would Judge Griffin's position have been if his wife had been in childbirth, or his 11-year-old daughter severely injured, or his father suffocating with heart failure?

Yes, people in Beaufort and Hyde Counties are concerned, and rightfully so. Yes, the court has authority, but

that authority must not be misdirected. Yes, doctors do have a responsibility to their patients. Yes, I am proud of my public service record and even more proud to be a "people doctor."

Charles O. Boyette, M.D., F.A.A.F.P.
Chief of Staff, Pungo District Hospital
Mayor, Town of Belhaven
Past President, North Carolina Academy
of Family Physicians
Chairman, Beaufort County Community
College Foundation

A word from Dr. Dykers

To the Editor:

I am behind on my reading as usual. Having to stay indoors on this beautiful Memorial Day because of my severe hayfever has allowed me to digest the March issue of the North Carolina Medical Journal. And so I find your publication of my letter of some months ago and your reply. Thank you very much for the best laugh of my week. I don't mind being sick at all today.

John R. Dykers, Jr., M.D.
P.O. Box 565
Siler City 27344

Two comments on Dr. Weaver's editorial

To the Editor:

I read with great interest the editorial by James P. Weaver, M.D., concerning the proposed revisions in physician reimbursement based upon a resource based relative value scale (RBRVS). While I agree with Dr. Weaver regarding the important issues raised concerning the intrusiveness of government into the practice of medicine (especially as it relates to cutting costs), I am afraid that he totally missed the point concerning the inequities of physician reimbursement. And as he points out, I hope that we can learn from history that the current charge based system of physician reimbursement is insane, unfair, and is itself divisive to organized medicine.

Dr. Weaver is naive to attempt to link the changes which have occurred in Medicare since 1965 regarding physician reimbursement because of the need to cut the federal budget with the separate issue of restructuring physician reimbursement based upon resource costs. If the federal government decides to cut Medicare costs, it will do so regardless of the method by which physicians are reimbursed! The problem with past regulations such as the MAAC program is that such cuts made an unfair system even more inequitable.

A restructuring of physician reimbursement based on resource costs is fair and easily justified when we review the facts critically. A majority of physicians will benefit from the RBRVS. The degree of change in Medicare income to physicians will be modest, with 75% of all physicians gaining or losing less than \$1,000. Within those few specialties that will be required to absorb major reductions, the brunt of

those reductions will be absorbed by a minority of physicians that do an extraordinarily high volume of over-compensated procedures—and we know who they are!

Let's look at the "big losers" under the RBRVS—ophthalmology, thoracic surgery, radiology, and pathology. Within the subspecialties of ophthalmology and thoracic surgery, one-half of these physicians would lose less than \$16,000 in Medicare income. For radiology, one-half will lose less than \$3000. For pathology, one-half would lose less than \$1,000. Hardly a major impact when the total annual income of these specialists is considered. Why Dr. Weaver would consider these modest changes as divisive is beyond me. Why the American College of Surgeons would oppose such changes which are clearly based on data which is far more objective than a charge based system of reimbursement is also unclear.

As a final comment, I would propose to Dr. Weaver that the major reason for the need to reform physician reimbursement is the issue of access to quality primary care for the citizens of this country. There is in fact a crisis in this country in the delivery of needed primary care services. In North Carolina alone, there are at least 48 counties that are grossly underserved with respect to primary care services and many more that are borderline. In New York, the ratio of subspecialists to primary care physicians is 70:30! All states are experiencing this critical problem and our patients are suffering the consequences.

While there are many reasons for this crisis in the delivery of needed primary care services and primary care physician manpower, one important one is the current inequity in the method by which physicians are reimbursed. As a result, medical students are electing not to enter the primary care specialties.

It is my firm belief that this nation's medical care system will be better served if it creates a stronger foundation based on quality primary care physician manpower provided by well trained specialists in primary care, especially family physicians. I know such a system would be cheaper without affecting quality.

Many changes are needed to redirect our system of medical care to one which places greater on access to quality primary care. Restructuring physician reimbursement is an important first step in this process. I challenge all of my medical colleagues to support this change in physician reimbursement. This is not just an issue of how physicians will be paid but it is also an important issue of how our patients will be cared for in the future.

Douglas E. Henley, M.D., Immediate Past President
North Carolina Academy of Family Physicians
Hope Mills Family Medicine Center, P.A.
Hope Mills 28348

To the Editor:

Having read Dr. Henley's letter to you, there are a few thoughts I would like to add.

I am a bit puzzled by Dr. Weaver's article. Why, for

instance, did Dr. Weaver put quotes around the words "inequities" and "problems?" Does he as a surgeon "proceduralist" really feel that there are no inequities in physician reimbursement according to specialty? Does he actually feel that there are no problems in our profession? Does he truly feel that the resource based relative value scale (RBRVS) is a "Trojan Horse that will divide the temple of medicine?" The North Carolina Academy of Family Physicians certainly hopes not. I am sure the American Society of Internal Medicine, American College of Physicians and the American Medical Association would agree.

We "cognitivists" maintain that there are definite inequities and problems in our profession that in the past have not divided the temple of medicine in spite of their existence. If making a wrong right divides us, then we know whose soul it will rest on. We maintain that such reform would move towards creating a level playing field for physicians, provide a health care system that is more balanced in terms of specialty and geographic distribution, moderate the growth of Medicare expenditures, and most importantly ensure greatly improved access to appropriate medical services for our patients.

Frank W. Leak, M.D., President
North Carolina Academy of Family Physicians
P.O.Box 18469
Raleigh 27619

Addendum to Dr. Sharp's article

To the Editor:

Due to mail problems, my galley proof did not reach you in time for changes to be made to my article in the June issue of the Journal (Family Support in North Carolina; 50:329-32).

I would like to let your readers know about the following additional community-based programs that train and match parents of children with a variety of disabilities or chronic illnesses, as well as new phone numbers for three of the programs that are listed in the article:

Asheville	Families for Exceptional Children	704/252-1355
Alamance Co.	Parents Reach-Out	919/227-0046
Asheboro	Parents with Difference	919/625-1113
Durham	Parent to Parent Project	919/682-1129
Gastonia	Parents in Partnership	704/867-2361
Mecklenberg Co.	Sharing Parent	704/549-1975
Morganton	Hope Network	704/433-2877
Raleigh	Parent to Parent	919/848-7838

Michael C. Sharp, M.D.
Family Support Network
Department of Pediatrics
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Chapel Hill 27599-7225

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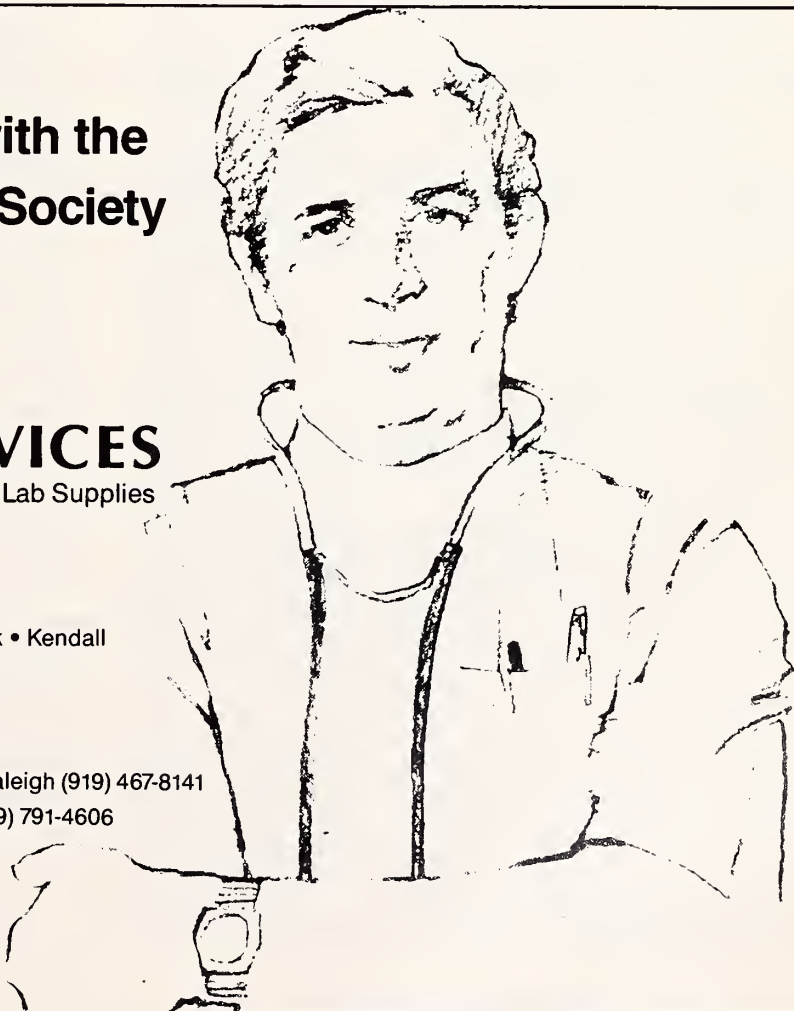
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In Memoriam

Alan Klein, M.D.

Dr. Alan Klein, associate professor of radiology at Bowman Gray School of Medicine, died of cardiac failure September 8, 1988. His precipitous death at age 56 took from his family, friends and medical colleagues a physician whose love and enthusiasm for life was a joy for everyone around him.

Alan Klein was born in Springs, South Africa in 1931. He completed undergraduate and medical training in Johannesburg, receiving BA and MB, BCh degrees from the University of Witwatersrand. His radiology training was at the Hammersmith Hospital and Guys Hospital in London, finishing in 1965. He returned to South Africa for both private and academic practice until 1976, when he and his family emigrated to the United States. He then accepted a position as instructor in radiology at Bowman Gray School of Medicine where he remained and was promoted to associate professor. Orthopedic and emergency radiology were his primary administrative responsibilities at Bowman Gray. He received the diploma of the American Board of Radiology in 1978. He became an American citizen in 1984.

Beyond his skills as a radiologist, Alan was a dedicated, enthusiastic, and innovative teacher. He won the Award for Teaching Excellence in the Physicians Assistant Program five times, and in the Emergency Medicine Residency Program four times. His joy in teaching and his humor resulted in resident conferences for which admission could have been charged. Interspersed with radiological "pearls" were Alan's color slides, often sharing sights from his extensive travels or glimpses of beauty as seen through the eyes of a gifted photographer. His curiosity and academic interest resulted in a number of interdisciplinary contributions to the radiologic and orthopedic literature. Dr. Klein belonged to all the major radiologic societies in the United States and the United Kingdom. He was a founding member of the American Society of Emergency Radiology, and was elected secretary-treasurer; this society plans to establish a memorial Alan Klein Lectureship. Alan was also internationally known and in unusual demand as a lecturer. He was, in fact, beginning three Australian university lectureships at the time of his untimely death in Cairns, Australia.

Alan Klein wore many hats outside radiology. He was a family man and an active participant in the local Jewish community. He was a member and vice-president of Beth Jacob Synagogue in Winston-Salem. Alan was an avid photographer and he received deserving recognition for his color photography and won prizes for his equally outstanding stamp collection.

Our deepest sympathies go to his family members, who have suffered the greatest loss. We share with his family the sorrow of his death, but remember the pleasure and cheer that he gave while he was here. He is survived by his wife, Louisa; two daughters, Aviva and Melissa; and his brother, Neville. Alan's quiet manner and pleasant smile are remembered by all who knew him.

Thomas E. Sumner, M.D.
Forsyth-Stokes-Davie County Medical Society

George Rovere, M.D.

George Rovere passed away on Thanksgiving Day, 1988. At his bedside were his loving wife Patricia Severin Rovere, his two daughters Elizabeth and Dina, and many of his close friends. All those present had shared his life with him and had been made better by it. He died a young man, but he led a rich and fruitful life, accomplishing more in his time than most men living to old age.

George was born in Union City, New Jersey, on March 5, 1933. He graduated from Syracuse University in 1954 and the State University of New York College of Medicine at Syracuse in 1958. His professional training included internship at the University of Virginia Hospital in Charlottesville, and orthopedic residency and training at the Hospital for Special Surgery, Cornell University, New York.

He served his country on active duty and as a captain in the United States Air Force Strategic Air Command, and later on as a colonel and chief of surgical services at the 312th Medical Evacuation Hospital in Greensboro. He was appointed commander of that same unit in 1985.

George Rovere was a professor of orthopedic surgery at Bowman Gray School of Medicine. His consuming passion was the organization and direction of what has become one of the finest sports medicine programs in the country. His exceptional knowledge and his sincere dedication to the sports medicine program, athletes, and residents, endeared him to all of us and earned him the admiration, respect, and love of all those who knew and worked with him.

George was appointed Section Head of Orthopedic Surgery at Bowman Gray shortly before his death, a testimony to the fact that even though he was severely ill he continued to put his illness aside, act as if he were well, and continue with the business at hand.

George was my teacher, my colleague, and my friend. I came to realize during the course of his long illness which

brought us closer together what was truly in this man's heart. He loved life and gave dignity and meaning to all the things he touched. He was a religious man. He loved the God who made him who now cradles him in the spirit of eternal mind and life everlasting.

Joseph F. Nicastro, M.D.
Forsyth-Stokes-Davie County Medical Society

Robert DeVane Croom, Jr., M.D.

Whereas, Robert DeVane Croom, Jr., M.D., of Maxton, NC, died on April 11, 1989, after a dedicated and exemplary career as a physician in medicine; and

Whereas, Robert DeVane Croom, Jr., M.D., was born December 28, 1909, and was a graduate of Davidson College. He graduated from the Medical College of Virginia in 1934 and did an internship at the Johnston Willis Hospital, Richmond, VA.

He was a member and Past-President of the Robeson County Medical Society, a member of the North Carolina Medical Society and the American Medical Association. He received his 50-year pin from the North Carolina Medical Society in 1987.

Dr. Croom began the practice of Family Medicine in Maxton, in 1935 and was a member of the medical staff of the Southeastern General Hospital, Lumberton, and the Scotland Memorial Hospital, Laurinburg. He was extremely active in his profession, community affairs, and the First Presbyterian Church, Maxton. He was an avid golfer.

He is survived by three sons, Dr. Robert D. Croom III of Chapel Hill, Dr. Fred H. Croom of Sewanee, TN, and Dr. John M. Croom of Stone Mountain, GA, and four grandchildren.

Dr. Croom was a dedicated and energetic physician in the practice of Family Medicine and was loved by his patients and colleagues. He was a devoted husband, father, and grandfather.

Whereas, Dr. Croom earned the respect, admiration, and endearing friendship of his peers for his warmth, humility, leadership, sense of humor, and selfless contributions to society; therefore be it

Resolved, that the Robeson County Medical Society express its profound sorrow at the death of Robert DeVane Croom, Jr., M.D.; and be it further

Resolved, that the Robeson County Medical Society convey its sympathy to his family and record this resolution in the *North Carolina Medical Journal*.

D.E. Ward, Jr., M.D.
Robeson County Medical Society

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Place: Asheville

Credit: 8 hours Category 1 AMA

Info: Mrs. Carol Russell, Executive Assistant, Specialty Societies, NCMS, P.O. Box 27167, Raleigh 27611. 919/833-3836

July 16-21

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Place: Asheville

Credit: Category 1 AMA, CEUs

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July 23-27

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Place: Grove Park Inn, Asheville NC

Credit: 15 hours Category I AMA

Info: W. Otis Duck, M.D., Treasurer, Southern Ob/Gyn Seminar, Inc., Drawer 729, Mars Hill 28754

July 24-29

12th Radiology Postgraduate Course

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August 31-September 1

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Place: Asheville

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July 1989

bulletin

NORTH CAROLINA MEDICAL SOCIETY

NCMS policy — Medicaid

On May 7, 1988, the House of Delegates of the North Carolina Medical Society adopted as policy the statement that: "The North Carolina Medical Society support and encourage the North Carolina Legislature to provide better funding of the Medicaid program to improve provider reimbursement and to extend coverage to the working poor who have no health insurance and no Medicaid coverage." A second policy had been adopted on May 2, 1987, which stated that "the Medical Society supports legislation which will adopt the same definition of the poverty level in North Carolina as is utilized by the federal government."

Senate Bill 225, which is currently pending in the General Assembly, addresses some of these concerns. This bill is a top priority both for the Medical Society and for the North Carolina Hospital Association. Senate Bill 225 has several goals: one of its primary aims is reducing our state's infant mortality rate of 12.5 per 1000 births, the sixth highest in the nation. This bill seeks to expand Medicaid

coverage for pregnant women and infants up to one year of age and to families that fall within 185% of the federal poverty level. If successful, the bill will extend Medicaid coverage to an additional 9,700 women and 10,100 infants.

Senate Bill 225 also seeks to raise the reimbursement rate for physicians who provide maternity care to Medicaid patients from the current \$625 to a more reasonable \$950 per patient. The bill would also provide extra funds for the Rural Obstetrical Care Incentive Program, which in its first year helped pay malpractice insurance premiums for 52 physicians in 22 medically underserved counties in North Carolina. Both the North Carolina Academy of Family Physicians and the North Carolina OB/GYN Society have had similar bills introduced that would provide even more funding than Senate Bill 225.

Another bill presented by the Indigent Care Study Commission would accelerate Medicaid coverage for children under the age of eight in families with

incomes up to 100% of the poverty level. This bill would extend Medicaid to 34,500 children and 6,570 adults in North Carolina. Until the state budget reaches its final form, it is uncertain how much money will be available for Medicaid expansion. Senate Bill 225 is, however, a step toward fulfilling the North Carolina Medical Society's policies on Medicaid.

SB 225 is a top priority for both the Medical Society and the North Carolina Hospital Association.

**A supplement
to the
North Carolina
Medical Journal.**



Washington —

Nursing home rules

Significant changes in federal nursing home rules may become effective August 1, 1989. The new rules address *unnecessary drugs* (excessive doses, drugs administered for excessive periods of time, drugs administered with inadequate monitoring, drugs administered without a diagnosis or one of two drugs from the same therapeutic class); physician participation in care planning; quality of care requirements; and frequency of required physician visits. Nursing home administrators should have more detailed information.

Medicare cuts

The Congress' agreement to seek \$2.3 billion in cuts to the Medicare program has prompted the consideration of at least three proposals: *expenditure targets*, a *ban on referrals involving an ownership interest and disproportionate Part B expenditure cuts* (especially aimed at "overpriced procedures"). The AMA organized congressional visits during the Memorial Day recess to try to defeat each of these proposals, and members of the NCMS are asked to contact their Senators and Representatives to oppose expenditure targets, a ban on referrals and a disproportionate Part B cut.

Catastrophic coverage

The debate continues around the financing of the new catastrophic coverage benefits under Medicare. New estimates from the Congressional Budget Office predict a surplus of \$1.5 billion per year. Senator Bentsen (D-TX) is continuing to look at a

possible reduction in the maximum annual premium but President Bush claims he will veto any attempt to cut the premiums to Medicare beneficiaries since HHS is estimating a short fall in the revenue for the outpatient prescription drug benefit effective January 1, 1991.

Relative Value Scale

The Department of Health and Human Services released its impact study of the Resource Based Relative Value Scale (RBRVS) on May 23, 1989. While the AMA acknowledged that the analysis is cause for concern, it also pointed out that the analysis is only preliminary since it is based on the current, incomplete RBRVS. Phase II of the RBRVS is not complete and additional work by the Physician Payment Review Commission and HCFA is necessary before a definitive analysis would be possible. The AMA is urging a slow, orderly implementation of a reimbursement system based on a relative value scale.

Physician referral ban

Rep. Pete Stark (D-CA) is working hard to pass his bill banning physician referrals to entities where there is an ownership interest. Stark may have to negotiate a few points to succeed. It appears he would agree to broad exceptions for rural physicians and those who own hospitals in medically underserved areas and would add a mechanism for applying for a waiver from HHS.

In response to Stark's continued momentum, Rep. J. Pickle (D-TX) is working on an alternative bill which would

Bulletin

is published monthly by the North Carolina Medical Society as a supplement to the *North Carolina Medical Journal*. Reader comments and suggestions are welcome and should be directed to Editor, *Bulletin*, North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611, (800) 722-1350

target "abusive practices" rather than all referrals.

Safe harbors

The proposed safe harbor regulations, specifying practices that will **NOT** be considered a violation of the Medicare and Medicaid Fraud and Abuse Law, may not be issued in final form until next spring. The proposed safe harbor regulations outline categories of conduct that would be protected from challenges and/or criminal prosecution.

At this point, it makes sense for providers to assess whether their business arrangements comply with the proposed safe harbor regulations. Since the final regulations may look different, it also makes sense to include a mechanism to dissolve arrangements if the final regulations make dissolution necessary.

Practice guidelines

The Medical Care Quality Improvement Act of 1989 (HR1692), recently introduced by Rep. Bill Gradison (R-OH), would require the Secretary of HHS to oversee the development of practice guidelines for physicians to use in selecting treatment strategies. In a recent hearing, the AMA opposed the development of practice guidelines by the federal government but supported other sections of the bill which provide for research on medical care outcomes, effectiveness and appropriateness. The AMA is working with the Rand Corporation to develop "practice parameters" for five different procedures this year and ten more next year.

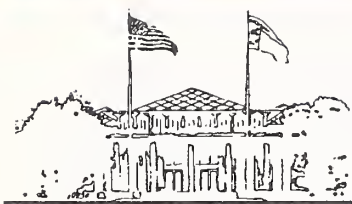
Data bank

The National Practitioner Data Bank authorized by the Health Care Quality Improvement Action of 1986 may not be operational until late 1989. The final regulations have not been released from the Office of Management and Budget. Based on the proposed regulations, it is clear that professional societies (national, state and county), licensing boards and insurance companies will be required to report **certain** disciplinary actions against physicians. We will review the final regulations and let you know the requirements as soon as they are released.

ICD-9

Effective April 1, 1989, physicians were required to submit ICD-9 codes on all Medicare Part B claims. In response to the AMA's efforts to delay the effective date of the requirement, HCFA agreed to a two month grace period (June 1 effective date). An **indefinite extension** of the grace period has been granted by HCFA to facilitate a "smooth implementation" period. HCFA reports that 90% of physician claims contained diagnosis codes in April but physicians are not linking the codes to the services provided.

Equicor, North Carolina's Medicare carrier, recently reported that after July 1, 1989 assigned claims without ICD-9 codes will be denied. Physicians submitting non-assigned claims will be monitored after 10 claims have been submitted without the codes. If there is no remedy, the physician could face monetary penalties and exclusion from the Medicare program.



Raleigh —

Although things appeared relatively calm at the General Assembly in the past few weeks, veteran legislative observers noted a lot of activity bubbling below the surface. The lingering dispute between House and Senate leaders over the meaning of the May 11 deadline for legislation passing its house of origin seems to have been resolved, enabling close to 100 bills that passed the Senate to be considered by the other chamber.

Among those bills of interest to physicians are House Bill 1264, to reduce the penalty for failure to wear a helmet while on a motorcycle from a misdemeanor to an

infraction and to require persons riding mopeds to wear helmets. This bill received a favorable vote from the Senate Transportation Committee. The North Carolina Medical Society position in favor of mandatory helmet usage was

well represented by Jeff Runge, MD, who by virtue of his work in the trauma center at Charlotte Memorial Hospital for the past eight years has seen a number of injuries due to mishaps involving mopeds and motorcycles. Dr. Runge cited statistics from an 18 month study of 54 persons hurt in motorcycle and moped accidents who were hospitalized in Mecklenburg County. Six of nine riders without helmets received major head injuries; only fifteen percent of the remaining patients had such injuries. Half of the 54 patients lacked health insurance. Dr. Runge em-

phasized that society needs to be shielded from the costs it incurs for those "who like to ride with their hair in the wind." Senators were clearly impressed with Dr. Runge's remarks and asked about the wisdom of extending mandatory helmet usage to bicyclists. State Health Director Ron Levine, MD, responded that education is the preferred means to implement helmet usage by bicyclists — and horseback riders. The bill is currently pending in the Finance Committee.

Other items of interest to the Medical Society include the introduction of a part of our tort reform package for 1989. Senate Bill 1295, introduced by Sen Joe Johnson (D - Wake), seeks to create a special Medical Malpractice Study Commission that would examine the use of court-ordered arbitration in medical malpractice actions.

Arbitration is trial before someone other than a judge or a judge and jury. The arbitrator hears and decides the case, usually within a short time after the facts are presented to him or her.

Arbitration can be binding or non-binding. Non-binding arbitration permits an independent court review of the arbitrator's decision if one of the parties is dissatisfied and wishes to file an appeal. Binding arbitration produces a final resolution to the dispute and is subject to constitutional attack on the basis that it deprives the plaintiff of his right to a jury trial. It appears non-binding arbitration is almost as effective as binding arbitration. A recent North Carolina study indicated the arbitrator's decision is accepted as final in 86 percent of the cases submitted

***SB 1295 would examine
the use of court-
ordered arbitration
in medical
malpractice actions.***

The other drug crisis

The war on drugs is in every newspaper, magazine and TV special. Its horrors are becoming more familiar, as the gang wars, overdoses and child addicts seem to fill the evening news. But America has another drug problem, and it is one you haven't read about in the headlines or seen on television. Polypharmacy — the misuse and overuse of prescription drugs by our nation's elderly — is a growing health problem that has been largely overlooked.

The problem is so severe, reports the American Association of Retired Persons, that "tens of thousands of older people are living in an 'inhuman and needless stupor' induced by misuse or overuse of prescription drugs." At a recent gathering of the American Psychological Association, Executive Director Bryant Welch suggested that "the problem of over-medication and mis-medication is so widespread that some people are calling this the nation's other drug problem."

Presently, older Americans make up about 12% of the population, yet they buy 25% of all prescription medicine. But by the year 2000, there will be 35 million older Americans taking one-half of all prescribed medicines. The sheer numbers of people and prescriptions make some over-medication unavoidable.

Consider the fact that about two-thirds of the patients who visit their doctor's office come away with one or more prescriptions. Dr. Frank Young, Commissioner of Food and Drugs for the FDA, estimates that as many as 50% of these prescriptions will fail to work as desired because of improper use.

CAUSES OF PRESCRIPTION FAILURE

- Not having the prescription filled in the first place
- Taking doses that are too large or too small
- Taking the medication at the wrong interval
- Forgetting to take one or more doses
- Discontinuing the medication too soon
- Taking the wrong medication
- Taking a friend's medication
- Saving medication for later use without a physician's knowledge

There are risks inherent in any prescription. Older patients face special circumstances that may contribute to their drug misuse. Many suffer from hearing loss, from poor vision, poor memory or increased dependency. Many face inadequate supervision and increased confusion in old age. A patient may have as many as 10 or 12 different medications prescribed by several different physicians, and may be mixing a combination of these with over-the-counter drugs. One study found that 40% of persons over 60 use over-the-counter medications every day.

The American Medical Association has begun to look at the issue of polypharmacy and has recently issued a White Paper on



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MMIC Insurance Services, a subsidiary of Medical Mutual, was established in 1977 to offer a full line of insurance policies for physicians, their offices and employees. While Medical Mutual operates on a break-even basis and MMIC Insurance Services offers an income source, our goals are the same: to provide the best services for physicians at reasonable prices.

This unique structure makes us different from other insurance agencies. Since MMIC Insurance Services reports to the physician board of Medical Mutual, you can count on us to keep your interests in mind.

MMIC Insurance Services. We go out of our way to provide personal attention, keep you informed and protect your practice.

Many of our programs are endorsed by the North Carolina Medical Society.

Endorsements from the North Carolina Medical Society and the North Carolina Dental Society have given MMIC Insurance Services

tremendous buying power in the marketplace. With the amount of business the operation has

built in recent years, we're able to move into more markets, which means better products and prices for our insureds.

Here's how it works. MMIC Insurance Services acts as an intermediary between national insurance companies and North Carolina physicians, searching for the best policies available or helping to design special programs. As agents for the companies and programs we select, MMIC Insurance Services receives a commission on all sales. Any profits generated are fed back into Medical Mutual, to help stabilize the cost of professional liability premiums.

The state's professional endorsements give us great leverage in the insurance marketplace. For example, MMIC Insurance Services was one of the nation's largest producing agents of disability coverage in 1988. As a result of such activity, we're able to get special rates and policies to accommodate physicians' special needs.

For members of the North Carolina Medical Society, there's an additional opportunity to save, through reduced rates on endorsed programs.

We offer one convenient source for your professional insurance needs.

Having your coverage in one place offers particular advantages to Medical Mutual policyholders. MMIC Insurance Services can supplement your professional liability coverage with a full line of business-owners and special programs, identify gaps in your coverage and make sure your policies stay up-to-date.

We offer the following insurance policies, many of which are endorsed by the North Carolina Medical Society:

MMIC Insurance

Available Programs

Physician SecurePlan. The comprehensive businessowners program designed exclusively for physicians, including:

- Building and contents coverage
- Computer software coverage
- Premises liability
- Personal property off-premises coverage
- Personal Injury
- Money and securities coverage
- Accounts receivable coverage
- Additional coverages
 - Worker's Compensation
 - Commercial umbrella
 - ERISA bonds

Other programs

- Life insurance
- Office overhead expense coverage
- Group disability
- Individual disability
- Personal lines of insurance

Special Service

Additional services available for your protection, including Physician Investment Advisory Services, customized to your needs. Physician Investment Advisory Services is a comprehensive financial planning package designed to meet the unique needs of physicians.

We specialize in the unique needs of physicians.

Medical Mutual, we are in close contact with the medical community and stay informed to keep up with your changing needs.

MMIC Insurance Services was created by physicians for physicians. As part of

YES, I'm interested in more information about MMIC Insurance Services and your programs.



Date _____

Name _____

Address _____

City/State/Zip _____

Telephone _____

Specialty _____

Date of Birth _____

Smoker/Non-smoker _____

Please send me information on the following programs:

- | | |
|---|--------------------------|
| Physician SecurePlan | <input type="checkbox"/> |
| Professional Liability (Malpractice) Coverage | <input type="checkbox"/> |
| Life Insurance | <input type="checkbox"/> |
| Office Overhead Expense Coverage | <input type="checkbox"/> |
| Disability Income | <input type="checkbox"/> |
| Worker's Compensation | <input type="checkbox"/> |
| Personal Lines | <input type="checkbox"/> |
| Physician Investment Advisory Services | <input type="checkbox"/> |

Insurance Services

When we develop a product, we begin with physicians' special needs and then build the policy around them. For example, Physician SecurePlan, our comprehensive businessowners program, includes off-premise coverage to protect your personal property. Other standard features include the replacement of x-ray films and valuable papers (patient charts) reconstruction.

Our special coverages reflect our commitment to offering the best value for your insurance dollar. Consider our disability plan, which offers a non-cancellable level premium to protect your future earnings. Or the office overhead expense, which protects your employees if you should be disabled — so that you can get your practice up and running as soon as you're ready.

MMIC Insurance Services is the only insurance agency in North Carolina that specializes in physicians' unique needs. And we're constantly updating our policies to serve you better.

Our profits come back to you.

What makes MMIC Insurance Services different from other insurance agencies? When you do business with us, the profits come back to you.

It's simple, really. Medical Mutual provides professional liability coverage on a break-even basis, while MMIC Insurance Services operates as a profit center. Because we work together, any profits generated by MMIC Insurance Services come directly back to Medical Mutual. This helps contain the cost of professional liability insurance, in effect subsidizing each policyholder's premium.

That's why we say that doing business with MMIC Insurance Services is like doing business with yourself. And that's good business.



MMIC Insurance Services
A Subsidiary of Medical Mutual
Insurance Company of North Carolina
222 North Person Street
Post Office Box 28388
Raleigh, North Carolina 27611-8388
919/828-9336
800/822-6561

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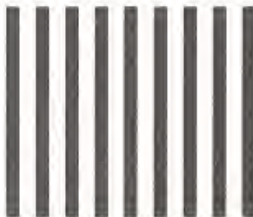
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elderly health care. The AMA states that “drug misuse in the elderly often goes unrecognized until the effects reach serious dimensions. Studies have indicated that almost 20% of the patients hospitalized in the geriatric service of a general hospital had symptoms attributable to side effects of prescription drugs.”

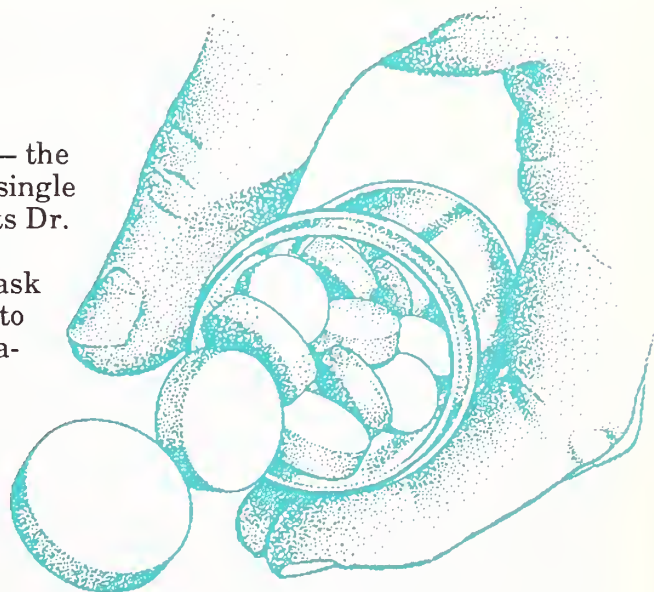
The AMA suggests that there is a lack of knowledge among physicians and other healthcare professionals concerning care for senior citizens. Jerry Gurwitz, MD, instructor at Harvard Medical School Division on Aging, states that “while over 75% of all medical schools offer courses in geriatrics, fewer than 10% of all medical students take them. And less than two percent of practicing physicians take continuing medical education courses in geriatrics.” Consequently, he concludes, many physicians mis-diagnose drug-induced confusion as old age, and prescribe yet another drug to treat a problem caused by drugs. Those patients who are apt to be the most sensitive to over-medication are those most prone to receive it.

Jim Parsons, MD, an internist in private practice in Raleigh, is Chairman of the North Carolina Medical Society’s Committee on Aging. He has highlighted several concerns regarding medication and the elderly. A key point to remember, according to Dr. Parsons, is that because older people metabolize drugs more slowly “they can often get by with a smaller amount of medication at less frequent intervals. Physicians should also remember that there is a high rate of non-compliance among the elderly, so that simpler

directions are better — the best prescription is a single dose per day,” suggests Dr. Parsons.

Many physicians ask their elderly patients to bring in all the medications that they are taking, including all the over-the-counter medications. That can be particularly important when a patient sees many specialists. In this way, the primary care physician can coordinate what medicines are being taken, and perhaps some that can be stopped.

Monroe Gilmour, MD, is an internist from Charlotte and former chairman of the Medical Society’s Committee on Aging. He has testified before the Medication Subcommittee of the House Committee on Aging in Washington, DC. Dr. Gilmour suggests that “one real problem is that too often the different prescriptions a patient is taking get lost in different medical records. There is a bill before Congress that would make computerized evaluation of patients’ medications available to both physicians and pharmacists. Very few places have it now, and it would do a great deal to help alleviate this crisis.” Dr. Gilmour went on to add: “The cost is great — both the human costs and the dollar costs. We need to get to work on America’s other drug problem.”



CHAMPUS adds new programs

The Society recently received a mailing from Seymour Johnson Air Force Base Medical Services concerning two new CHAMPUS programs. "Health Care Finder" involves accepting assignment at a predetermined fee schedule for patients referred by a military facility and patient referrals to providers who have signed agreements. The "Partnership" program covers care rendered by a CHAMPUS physician in a military medical treatment facility. Through the latter program, the government pays the cost share and deductible amounts. If you wish to know more about these programs, you may call Ms. Peggy Spivey, Health Benefits Advi-

sor, (919) 736-5650 or Mr. Joseph McAteer, Director, Patient Administration, (919) 736-5276, at Seymour Johnson.

Also on CHAMPUS: The new fiscal intermediary for North Carolina's CHAMPUS program is Blue Cross/Blue Shield of South Carolina. Telephone—(800) 476-8500, mailing addresses—Correspondence Department, PO Box 65000, Columbia, SC 29260-5000, Medical Review Department, PO Box 65100, Columbia, SC 29260-5100 and Claims Department, Blue Cross/Blue Shield of South Carolina, PO Box 100502, Florence, SC, 29501-0502.

Medicare Partners moving ahead

The Indigent Care Subcommittee continues to work diligently in developing several local pilot projects for its NC Medicare Partners program. Medicare Partners is a voluntary Medicare assignment program designed to help physicians identify low income Medicare beneficiaries and to encourage physicians to accept Medicare's allowed amount for these patients.

Eleven local medical societies - Brunswick, Buncombe, Catawba, Cumberland, Edgecombe, Greater Greensboro, Mecklenburg, Pitt, Richmond, Robeson and Wake Medical Societies - have heard presentations about Medicare Partners and are at various points in analyzing the

potential for serving as pilots and implementing the program. Brunswick, Catawba, Greater Greensboro Society of Medicine, Pitt and Wake Medical Societies have identified local organizations to conduct the eligibility determination process and are currently enrolling physicians into the program.

All in all, the piloting of Medicare Partners is moving ahead very close to schedule. With this in mind, the Indigent Care Subcommittee will be meeting again soon to review its progress in this area, and to continue its work on other recommendations contained in the North Carolina Medical Society's Policy on Indigent Care.

President's page

As has been previously mentioned in this letter, the AMA is on record as committed to a major expansion of its activities in the area of quality assurance. Special attention has been focused on the issue of inappropriate utilization of medical and surgical services and patterns of apparent overutilization and underutilization as well as unexplained variations in utilization. The development of practice parameters has received increasing attention as a possible response to concerns regarding inappropriate utilization. Many specialty societies have already begun to study practice parameters as a means of addressing inappropriate utilization.

A part of the strategy of the AMA is to improve quality through the development of practice parameters. The development of practice parameters for a specific clinical situation requires considerable input from practicing physicians and the medical community. Input from the medical research community is also needed to provide perspective on the significance of specific studies and the latest advances in medicine.

The practice parameters will outline appropriate tests and procedures for certain clinical situations and will not define one specific course of action. They will help the practicing physician remain abreast of advances in clinical knowledge and allow him or her to tailor treatment regimens most appropriate for individual patients.

The AMA wants to work effectively with all physicians and the specialty societies to assure that appropriate practice parameters are developed. The AMA will play a central role as the representative of all medicine in coordinating the efforts of specialty societies and others.

There are concerns about the development of practice parameters. These include the adequacy of the technique for developing the parameters, the potential of practice parameters to restrict patient treatment options and stifle innovation, inappropriate uses of practice parameters in payment decisions and potential malpractice liability. The AMA will help evaluate and address these concerns; they hope that improvement in techniques used to develop practice parameters will occur as experience increases.

The AMA and the RAND Corporation are jointly developing practice parameters; as more specifics are forthcoming, you will be updated. The question that arises locally is how do we, as physicians and members of the North Carolina Medical Society, develop and offer our input into this important aspect of health care? I would like to hear from any of you who have specific ideas or suggestions on the general issues involved with the development of practice parameters. Please write me at NCMS, PO Box 27167, Raleigh, NC 27611.



Ernest B. Spaugler
Ernest B. Spaugler, MD
President

Good news does travel fast

The AMA and NCMS sponsored another successful practice management seminar at Mid Pines, May 19-20. "Starting Your Practice" received excellent evaluations from all participants. Surprisingly only one resident attended. Participants tended to be practicing physicians who initially joined large groups but are now making new career plans or those who have concluded that they need to know more about the business aspects of medical practice. One remarked, "Excellent experience for a practitioner who's been at this for almost two years. Wish I'd done it earlier." Another evaluation read, "Absolutely a must for a physician to attend this workshop in the early years of practice whether solo or part of a group. Even though many of the duties discussed are delegated to others, the physician needs to be familiar with all of the items included."

Topics covered included setting up a billing process and how to monitor the staff's handling of insurance, etc.; borrowing money; health care law and risk management; the pro's and con's of various types of corporations; marketing, etc. Even the participants with over twenty years of experience in a large group felt the seminar was right on target for someone starting a new practice arrangement.

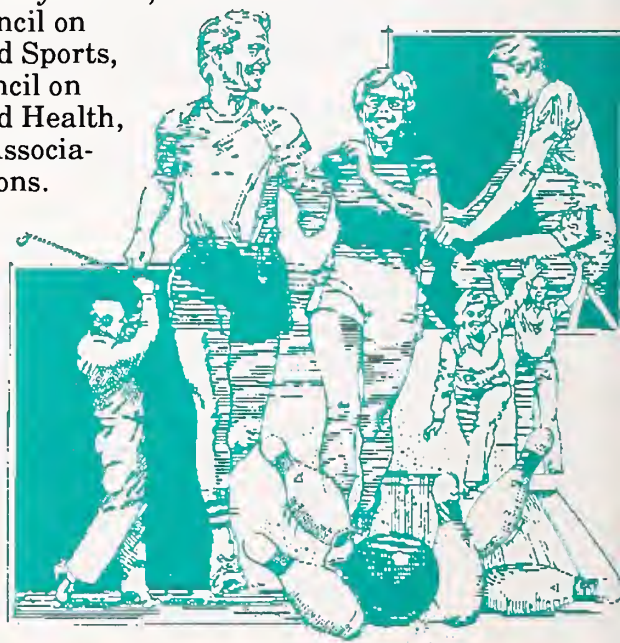
"Building/Starting a Practice" will be offered again in the 1990 schedule of NCMS-AMA seminars.

NCMS endorses Senior Games

The North Carolina Medical Society is proud to endorse the Fifth Annual North Carolina Senior Games State Finals. The Senior Games are a series of athletic competitions for those aged 55 and over. There are 18 different sports in the State Finals, which will be held September 21-24, 1989, at high schools in the Raleigh area. The opening ceremonies are to be held at Athens Drive High School, September 21st, at 7:30 pm. This year's Games are expecting some 1500 participants, all of whom have competed and won in their local area. In all, 3-4000 people will attend a part of the Games. The Senior Games are also endorsed by the NC Academy of Family Physicians, the President's Council on Physical Fitness and Sports, the Governor's Council on Physical Fitness and Health, and the American Association of Retired Persons.

Come on out and support these senior athletes. For more information, contact:

North Carolina
Senior Games, Inc.
PO Box 33590
Raleigh, NC 27636
(919) 851-5456



Briefly ...

Bulletin expands

We've grown! Beginning this month, you will notice several changes in the North Carolina Medical Society *Bulletin*. We have gone to two colors, expanded our size, and changed printers. The *Bulletin* will now be polybagged and delivered along with the *North Carolina Medical Journal* to all of our monthly subscribers. These changes will allow us to produce the *Bulletin* more quickly and will save the Medical Society over \$10,000 per year in postage.

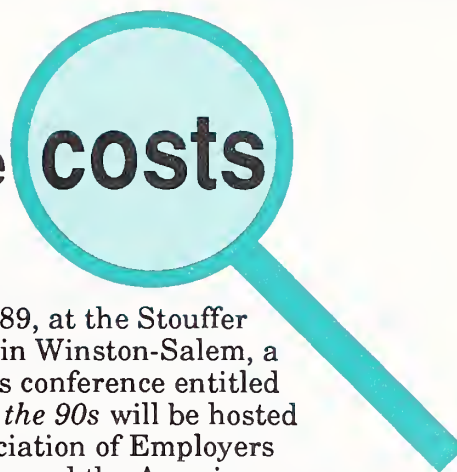
AMA National Political Education Conference

The AMA is sponsoring its annual Washington Conference on October 4-5, 1989, at the Sheraton Washington Hotel. This year's theme is *Preventive Politics: Preparing for the 1990s*.

This conference will consist of both campaign workshops and guest speakers, including addresses by the new chairmen of the Democratic and Republican Parties. In addition, a private reception sponsored by the AMA will give physicians the opportunity to mix with members of Congress. Please keep this date in mind.

For more information, call Bob Burns at (800) 722-1350 or (919) 833-3836.

Healthcare costs examined



On October 26-27, 1989, at the Stouffer Winston Plaza Hotel in Winston-Salem, a joint medical/business conference entitled *Quality Assurance in the 90s* will be hosted by the National Association of Employers on Health Care Action and the American College of Physician Executives. This promises to be an important event, and several members of the North Carolina Medical Society will be guest speakers. Other guests include hospital executives, corporate benefit planners, and the members of several health-related foundations. For more information on this two-day event, call the National Association of Employers on Health Care Action, (305) 361-2810.

Deceased physicians

Croom, Robert DeVane, Jr., 79, Maxton
Dawson, Ralph B., 79, High Point
Grable, Theodore James, 73, Asheville
Holden, Peter Holt, 67, Durham
Lewis, Clifford Whitfield, 86, High Point
Lipkin, Mack, 82, Chapel Hill
Melton, Robert Allen, Jr., 59,
Wrightsville Beach
Murphy, Arthur Gordon, 75, Chapel Hill
Smith, Jay L., 71, Salisbury

Calendar ...

Annual Meeting — Grove Park Inn

The North Carolina Medical Society's Annual Meeting will take place November 8 - 11, 1989, at the Grove Park Inn in Asheville. Those of you who have attended our conferences at the Grove Park in the past know what a great event this is; newcomers need to find out for themselves! Surrounded by the beautiful fall colors of the Great Smoky Mountains, the Annual Meeting is an event to remember.

AMA declares...

The American Medical Association has named July 23-30th as **Hemochromatosis Awareness Week**. The purpose is to promote the awareness of this common genetic disorder that causes excessive iron absorption, and to help promote early diagnosis and treatment and patient support. For more information, contact Hemochromatosis Foundation, PO Box 8569, Albany, NY 12208, (518) 489-0972.

• • •

July 30th begins **National Nuclear Medicine Week**, which recognizes the contributions nuclear medicine professionals make to health care. For more information, contact Society for Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760, (212) 889-0717.

Institute for Healthcare Leadership

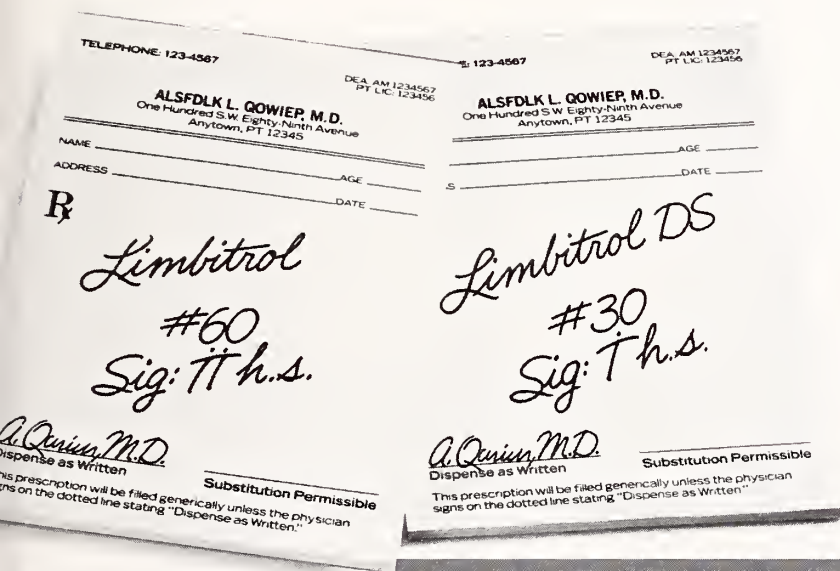
The 2nd Annual Institute for Healthcare Leadership will be held this October at the Grove Park Inn in Asheville. Last year's conference was a great success. Watch the *Bulletin* for more information on this upcoming event.

Hospital Health Insurance Institute

The 29th Annual North Carolina Hospital Health Insurance Institute will be held October 10-11 and October 12-13 at the Holiday Inn Four Seasons in Greensboro. This event is sponsored by the North Carolina Hospital Association, the NC Chapter of the Healthcare Financial Management Association, the Hospital Relations Committee of the NC Council on Consumer and Professional Relations and Blue Cross/ Blue Shield. The Institute is an educational endeavor that provides the opportunity to learn how to complete third party payment claims in the most expedient way. Persons who are employed by hospitals, physician/professional offices, nursing homes, clinics and home health agencies in billing, accounting, collecting, insurance and admitting are encouraged to participate. For more information, contact the NC Hospital Association at (919) 832-9550.

In moderate depression and anxiety

- ➔ 74% of patients experienced improved sleep after the first *h.s.* dose¹
- ➔ First-week improvement in somatic symptoms¹
- ➔ 50% greater improvement with Limbitrol in the first week than with amitriptyline alone²



Protect Your Prescribing Decision:
Specify "Do not substitute."

Limbitrol[®]

Each tablet contains 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt) ^(V)

Limbitrol[®] DS

Each tablet contains 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) ^(V)

References: 1. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 2. Feighner JP, et al: *Psychopharmacology* 61:217-225, Mar 22, 1979.

Limbitrol[®] Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, a summary of which follows:

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants; concomitant use with MAOIs or within 14 days of monoamine oxidase inhibitors (then initiate cautiously, gradually increasing dosage until optimal response is achieved); during acute recovery phase following myocardial infarction.

Warnings: Use with caution in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur when used with anticholinergics. Closely supervise cardiovascular patients. Arrhythmias, sinus tachycardia, prolongation of conduction time, myocardial infarction and stroke reported with tricyclic antidepressants, especially in high doses. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations. Consider possibility of pregnancy when instituting therapy.

Withdrawal symptoms of the barbiturate type have occurred after discontinuation of benzodiazepines (see Drug Abuse and Dependence).

Precautions: Use cautiously in patients with a history of seizures, in hyperthyroid patients, those on thyroid medication, patients with impaired renal or hepatic function. Because of suicidal ideation in depressed patients, do not permit easy access to large quantities of drug. Periodic liver function tests and blood counts recommended during prolonged treatment. Amitriptyline may block action of guanethidine or similar antihypertensives. When tricyclic antidepressants are used concomitantly with cimetidine (Tagamet), clinically significant effects have been reported involving delayed elimination and increasing steady-state concentrations of the tricyclic drugs. Use of Limbitrol with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Should not be taken during the nursing period or by children under 12. In elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects. Inform patients to consult physician before increasing dose or abruptly discontinuing this drug.

Adverse Reactions: Most frequent: drowsiness, dry mouth, constipation, blurred vision, dizziness, bloating. Less frequent: vivid dreams, impotence, tremor, confusion, nasal congestion. Rare: granulocytopenia, jaundice, hepatic dysfunction. Others: many symptoms associated with depression including anorexia, fatigue, weakness, restlessness, lethargy.

Adverse reactions not reported with Limbitrol but reported with one or both components or closely related drugs: **Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke. **Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania, increased or decreased libido. **Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns. **Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract. **Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus. **Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia. **Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue. **Endocrine:** Testicular swelling, gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion. **Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

Drug Abuse and Dependence: Withdrawal symptoms similar to those noted with barbiturates and alcohol have occurred following abrupt discontinuance of chlordiazepoxide; more severe seen after excessive doses over extended periods; milder after taking continuously at therapeutic levels for several months. Withdrawal symptoms also reported with abrupt amitriptyline discontinuation. Therefore, after extended therapy, avoid abrupt discontinuation and taper dosage. Carefully supervise addiction-prone individuals because of predisposition to habituation and dependence.

Overdosage: Immediately hospitalize patient. Treat symptomatically and supportively. I.V. administration of 1 to 3 mg physostigmine salicylate may reverse symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

How Supplied: Double strength (DS) Tablets, white, film-coated, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt), and Tablets, blue, film-coated, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500; Tel-E-Dose[®] packages of 100; Prescription Paks of 50.



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Roche Products Inc.
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In the depressed and anxious patient

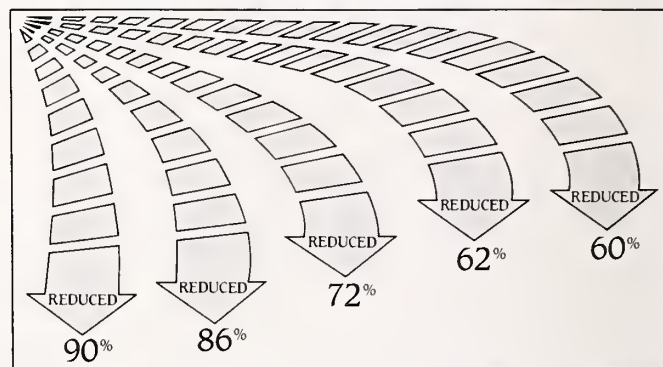
See Improvement In The First Week...¹

And The Weeks That Follow

- ➔ 74% of patients experienced improved sleep after the first *h.s.* dose¹
- ➔ First-week reduction in somatic symptoms¹

Caution patients about the combined effects of Limbitrol with alcohol or other CNS depressants and about activities requiring complete mental alertness, such as operating machinery or driving a car. In general, limit dosage to the lowest effective amount in elderly patients.

Percentage of Reduction in Individual Somatic Symptoms During First Week of Limbitrol Therapy*



VOMITING NAUSEA HEADACHE ANOREXIA CONSTIPATION

*Patients often presented with more than one somatic symptom.

Limbitrol[®]

Each tablet contains 5 mg clordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt) (N)

Limbitrol[®] DS

Each tablet contains 10 mg clordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) (N)

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Roche Products

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Volume 50
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For Doctors and their Patients

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A nursing student recalls... **My First Patient**

Trina Deal

The Lady with the Lamp: Three Poems

Isaac Lubetsky

Reducing Infant Mortality in North Carolina

Edward C. Halperin, M.D.
and Sarah T. Morrow, M.D., M.P.H.

Survey of Maternal Transports to the North Carolina Memorial Hospital

John M. Thorp, Jr., M.D., Stuart Jordan, M.D.,
William J. Watson, M.D., and
Watson A. Bowes, Jr., M.D.

Medicaid

Annie Brickett and Paul R. Perruzzi
with an introduction by
Ernest B. Spangler, M.D., President,
North Carolina Medical Society



"...I could tell he needed my company, my compassion
as much as the medication..."

page 441

Annual Session

November 8 - 11, Asheville

The Direct Line To Security And Peace of Mind



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Why Do Physicians From Around The U.S. Send Kids To One Atlanta Hospital For Old-Fashioned Care?

At the Ridgeview Institute, "progress" in health-care delivery has passed us by. Our highly-qualified, experienced physicians—not MBA's or CPA's—still call the shots. Because Ridgeview is still non-profit, still not owned by any chain.

At Ridgeview we haven't figured out yet how "efficient" it is to treat all our adolescents and children on one unit. We still believe that some patients need a special program for chemical dependence and dual diagnoses. For those with conduct disorders, we offer a highly structured, confrontive milieu. Younger children benefit from our cognitive-behavioral track. Older kids gain more in the insight-oriented program.

Because quality is still our bottom line, Ridgeview has enough qualified staff to make truly individualized treatment a reality. There are seventeen full-time licensed family

therapists, who are very creative and skilled at working with families outside Atlanta. There is an on-campus school—the equal of most private academies—offering class sizes of 6-10.

Of course we have made *some* changes. You can call a toll-free number now—until midnight seven days a week—and consult a Masters-degreed assessment specialist. They'll help select the appropriate program and attending physician. They'll assist your patient's family with everything from information to travel plans.

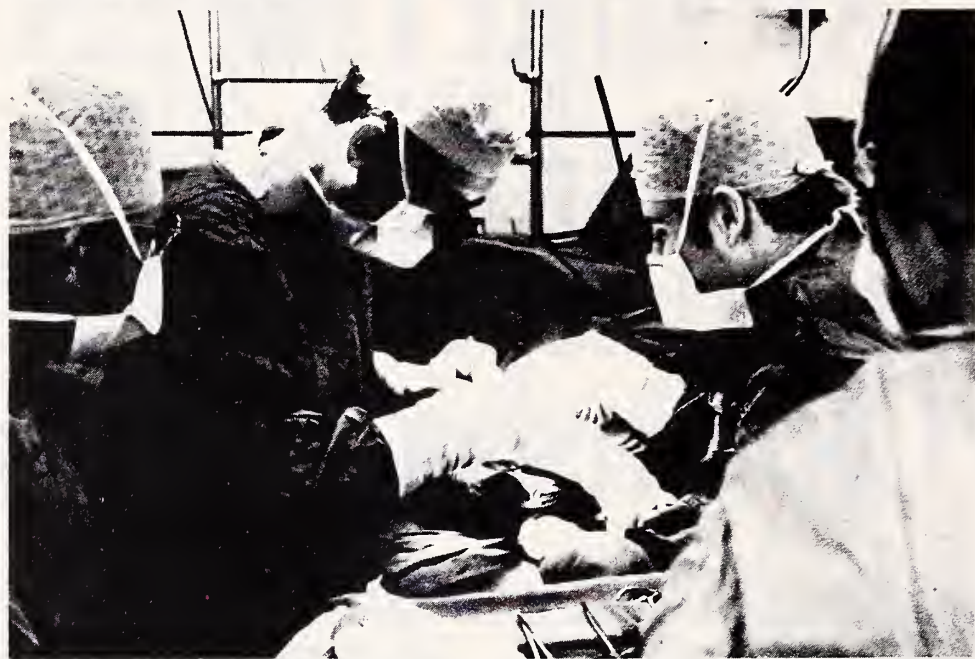
The best of the old, combined with the best of the new—that's why the Ridgeview Institute is Atlanta's World-Class Treatment Center for children and adolescents as well as adults. We'd love to work with you the next time you have a patient who needs something a little bit old-fashioned.



Atlanta's World-Class Treatment Center

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THE ARMY RESERVE OFFERS NEW FINANCIAL INCENTIVES FOR RESIDENTS.



If you are a resident in Anesthesiology or Surgery*, the Army Reserve has a new and exciting opportunity for you. The new Specialized Training Assistance Program will provide you with financial incentives while you're training in one of these specialties.

Here's how the program can work for you. If you qualify, you may be selected to participate in the Specialized Training Program. You'll serve in a local Army Reserve medical unit with flexible scheduling so it won't interfere with your residency

training, and in addition to your regular monthly Reserve pay, you'll receive a stipend of \$678 a month.

You'll also have the opportunity to practice your specialty for two weeks a year at one of the Army's prestigious Medical Centers.

Find out more about the Army Reserve's new Specialized Training Assistance Program.

Call or write your US Army Medical Department Reserve Personnel Counselor:

**Army Reserve Health Care Team
2634 Chapel Hill Blvd.
Suite 205
Durham, NC 27707-2875
(919) 493-1364 Collect**

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Reducing Infant Mortality in North Carolina

Edward C. Halperin, M.D., and Sarah T. Morrow, M.D., M.P.H.

The infant mortality rate in North Carolina is a travesty and an embarrassment. Babies born in this state are more likely to die before reaching their first birthday than in 45 other states in the nation. For those infants who do not die, a life of illness and disability often follows their troubled birth. It appears that the single most important cause of infant death and disability is low birth weight. North Carolina's rate of low birth weight babies (<5.5 lbs) and very low birth weight babies (<3 lbs, 3 oz) exceeds the national average. The probability of low birth weight can be dramatically reduced by early, consistent, and thorough prenatal care.

The North Carolina Institute of Medicine Report

The North Carolina Institute of Medicine recently issued a Task Force Report for the reduction of infant mortality in our state. As they pointed out, the infant mortality rate in 1987 was 12.1 in every 1,000 live births—up from 11.6 the previous year. Out of 93,480 births, 1,134 babies died, most of them within the first month of life. Black babies have a mortality rate twice that of white babies—17.6 per 1,000 live births v 9.6. Women who receive no prenatal care, inadequate prenatal care, or begin care late in the pregnancy are at greater risk of having premature infants, infants who may die within the first year of life, or infants who have lifelong disabilities.

It is clear that the risk of a low birth weight infant is highly correlated with the age of the mother. Teenagers who are not fully physically developed and become pregnant put themselves and their babies at risk for long term medical problems. More education and programs are needed to reduce teen pregnancies. A major emphasis of the infant

mortality reduction program is to ensure that every baby is a planned and wanted baby. More attention needs to be given to the health of the mother prior to conception. Women who wish to conceive must be impressed with the dangers of alcohol, drugs, tobacco, venereal disease, and AIDS to their babies.

Nutritious food for the pregnant woman is essential. The Women, Infants, and Children (WIC) nutrition program exists in all 100 counties of the state but serves only 43% of eligible women. This program provides food vouchers for pregnant women and, eventually, their newborns. Every effort should be made to assure that those women who are eligible for the program are not stymied by red tape and bureaucracy. For those pregnant women and young children not covered by WIC, other sources of funding should be identified to fill their nutritional needs. The United States stands at the forefront of economic development. We can assure that pregnant women and infants get enough of the right foods to eat.

The Task Force Report centers on two main points. First is to assure that prenatal care is available and accessible to all pregnant women. Second is the need for an intensive educational program to alert the general public, patients, families, and health care providers to the importance and need for early and continuous prenatal care in preventing premature births.

The Task Force recommends that more physicians willing to provide obstetrical care be recruited to serve areas now underserved, and that physicians participating in rural obstetrical health care be adequately reimbursed for their services. The state should provide additional relief from malpractice premiums for those of our colleagues working in medically underserved counties. There should be adequate funding and staffing for public health clinics providing prenatal care. Further, the Task Force report encourages employers to provide adequate insurance for maternal and infant care services and adequate leave for pregnant employees to receive prenatal services, and to reduce worksite hazards to maternal and fetal health.

From the Division of Radiation Oncology, Department of Radiology, Duke University Medical Center, Durham (ECH), and the EDS Corporation, Raleigh (STM).

While we would argue that the implementation of a program to reduce infant mortality in this state is just and proper, it is also in our economic self-interest. The average cost of care for a newborn in an intensive care unit is \$30,000. The cost of caring for five low birth weight infants in intensive care facilities would pay for prenatal care for 149 women. It has been estimated that every dollar spent by employers in providing for additional prenatal care for their employees would save \$2.37 by preventing expensive complications of bad pregnancy outcomes. One would expect that a major push for reduction in this state's infant mortality and morbidity rates would come from the business community. We all pay for infant mortality and morbidity through excessive expenditures of public funds and higher insurance premiums.

We are dealing with a solvable problem that is very costly to all of us as taxpayers. It is time for an end to

complacency. It will take a commitment by the people of North Carolina to improve maternal and child health in this state—the willingness of the General Assembly to appropriate public funds, willingness of the counties to coordinate services and reach out to help pregnant women and infants, willingness of employers and insurance companies to financially cover prenatal care and delivery.

But no reduction in infant mortality can occur without the help of our doctors. The challenge to our medical community is to provide the leadership to set the wheels in motion to reduce premature births, infant mortality, and long-term disability in infants. As physicians we must share the responsibility of dealing with this problem through our advocacy, our guidance, our provision of professional services, and our encouragement of elected officials to support the reasoned program of the Task Force of the North Carolina Institute of Medicine. □

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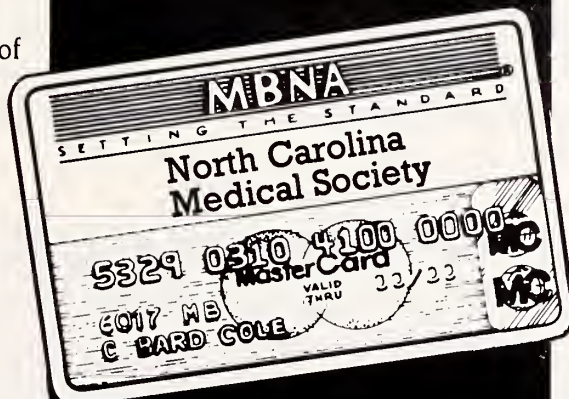
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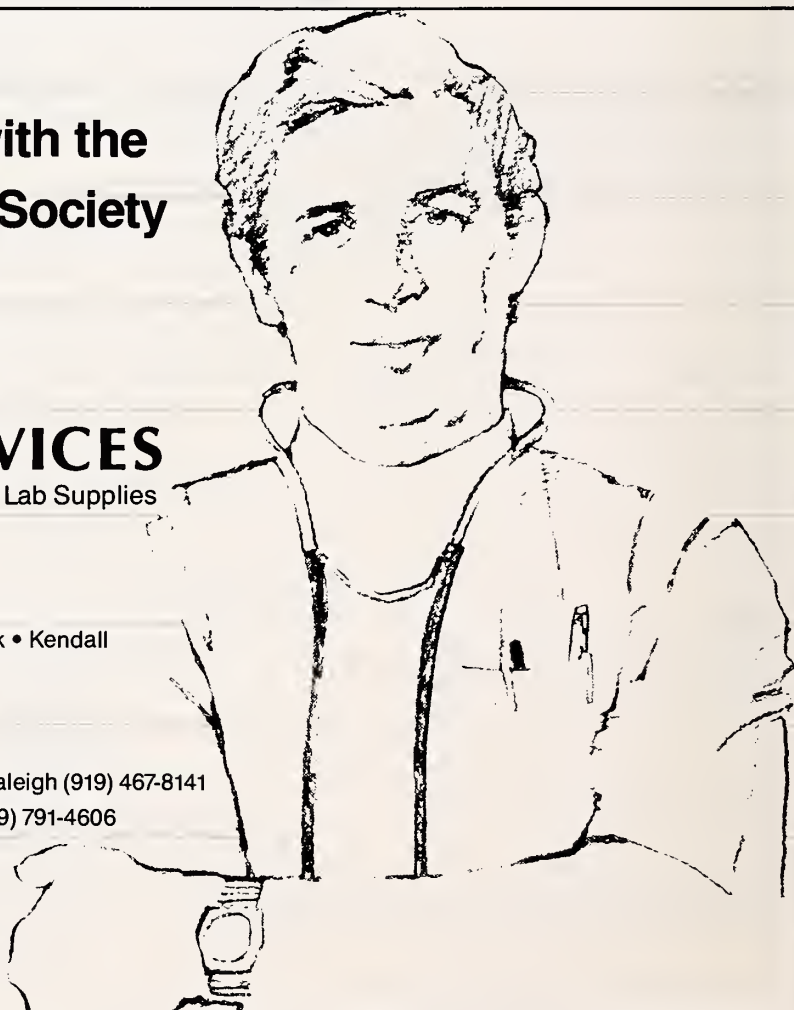
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Survey of Maternal Transports to the North Carolina Memorial Hospital

John M. Thorp, Jr., M.D., Stuart Jordan, M.D., William J. Watson, M.D., and Watson A. Bowes, Jr., M.D.

In 1969, regionalization of perinatal health care was first proposed in Canada. One of the underlying premises was that certain mothers and infants would benefit from maternal transport to hospitals "where all resources are available to take care of any deviations from normal which might endanger the mother or her baby."¹ In the United States in 1971, the AMA House of Delegates adopted a position supporting regionalized perinatal care. Eight years later, Congress in PL 93-461 outlined "National Health Goals" that clearly supported regionalization for accomplishing maternal-fetal transport.

As early as 1967, North Carolina's medical centers began the development of perinatal intensive care units. In response to recommendations from the Task Force on Maternal and Infant Health, the North Carolina General Assembly passed House Bill 1240 in March 1974. This established the Regionalized Perinatal Care Program with one underlying premise being that a medical center with perinatal specialists would attract referral of high risk babies in utero.²

From 1974-79, the North Carolina program divided the state into six perinatal regions. Each region has at least one hospital providing tertiary or "level III" care. One of the stated goals was that each gravida would have "level III care within a three-hour travel time."

Studies done nationally and internationally have demonstrated the efficacy of such an approach. In utero transfers avoid intrapartum deaths during labor³ and tend to be simpler than transporting sick neonates.⁴ Much data have been accumulated to demonstrate that fetuses transferred in utero tend to have better outcomes than neonatal transfers.⁵⁻¹¹ Similar work in North Carolina has shown an association between tertiary referrals and declines in very low birth weight perinatal mortality.¹²

From Division of Maternal and Fetal Medicine, Department of Obstetrics and Gynecology, CB# 7570, 214 MacNider Bldg., University of North Carolina School of Medicine, Chapel Hill 27599-7570.

Method

The purpose of this study was to identify all incoming calls requesting maternal transport to the North Carolina Memorial Hospital (NCMH). NCMH is one of two tertiary centers in the North Carolina Perinatal Region IV. It has a 16-bed neonatal intensive care unit with fellowship programs in perinatal and neonatal medicine. It also has an active air ambulance service and neonatal transport team.

We distributed a one-page reporting form that included patient's name, date, and name of referring physician or agency. Faculty and housestaff in the obstetric and pediatric services were made aware of the study. After identifying the patients, we called the referring physician and gathered data on the specialty of that physician, financial status of the patient, ultimate disposition, mode and time of transport, number of calls necessary to arrange transfer, and an estimate of the amount of time spent in this endeavor.

The study covered the period of time from May 1, 1988, to June 30, 1988. Data were gathered on every patient received in transport at NCMH during that time period. Statistics were analyzed using chi-square and Fisher's exact test where appropriate.

Results

Forty-nine calls for maternal transport were received during the study period. Reasons for transfer included 17 patients with preterm labor, 19 with preterm premature rupture of the membranes, and 10 with preeclampsia. Three patients were transferred for other reasons. Six potential transports involved multiple gestation (five twin pregnancies, one triplet). Ten mothers were categorized as "self-pay," 15 had public assistance and 11 were insured privately. Thirty calls were made by obstetricians, 18 by family practitioners, and one by an emergency room nurse.

The referring physicians made 2.6 mean calls per transfer. Only a single call was necessary for transfer in 21 patients; excluding this group, the mean rose to 3.8 calls per patient. The average number of institutions called by the referring physician was 2.4. Exclusion of the 21 patients accepted on the first call resulted in a mean of 3.3 institutions called per patient. The average time spent by the referring physician was 61 minutes per transfer. Again, excluding the 21 first-call accepts, the mean rose to 102 minutes (table 1).

Thirty of 49 transfers were accepted by NCMH. Of the 19 rejections, 13 were transferred to other level III centers and six were cared for in their local hospitals. One of the level III centers was in Norfolk, VA, and the other was in Spartanburg, SC. Two of the six pregnancies delivered in the local hospital. They ultimately resulted in neonatal transport of 600 gm and 700 gm infants—one to NCMH, one to another neonatal intensive care unit. Of the 30 mothers accepted for transfer to NCMH, 22 transfers were via ambulance, six via family vehicles and two via air ambulance. Labor and delivery nurses traveled with ten of the transports, and physicians with three of the mothers. The average time of transport was 83 minutes, with a standard deviation of 61 minutes.

Statistical analysis revealed that payment status, presence of a multiple gestation, diagnosis category, or specialty of referring physician did not have a significant impact on the likelihood of rejection or acceptance.

Discussion

Our review and analysis of attempted maternal transfers to NCMH revealed some interesting findings. We rejected over one out of three referrals because our nursery had been closed

by the attending neonatologist when all beds and ventilators available in the unit were in use. The likelihood of rejection did not change with payment status, diagnosis, presence of multiple gestation, or the specialty of the referring physician. Referring physicians had to make multiple phone calls and averaged over an hour of their time in making arrangements for transfer. This delay in transfer was followed by long transport times often accomplished in family vehicles. Six patients could not be transported because of a lack of intensive care nursery space within the state. This resulted in the delivery of two very low birth weight infants in their home level I hospitals and subsequent neonatal transports. Two mothers required transfer to out-of-state level III centers (Norfolk, VA, and Spartanburg, SC). Over one-third of our referrals were generated by family physicians.

If the 60-day survey analyzed here reflects the situation statewide, North Carolina is falling short of its stated goal to "develop accessibility in that system of level III care within a three-hour travel time." Our data demonstrate a lack of accessibility that results in much frustration for patients, referring physicians, and level III centers, and may result in increased perinatal morbidity and mortality.

There are several potential solutions to this problem. At one time, there was a Perinatal/Neonatal Telecommunications network in the state. In a computer simulation, this network was shown to provide a significant reduction in the number of referral telephone calls necessary to locate a bed for transfer.¹⁰ This efficacy has not been tested in any sort of actual trial, and the system lost its funding and was abolished in 1987.

Other possible solutions include expanding the number of intensive care nursery beds, increasing the number of hospitals with level III facilities, creating more level II beds for "back-transfer" of growing neonates, and providing regional registration with automatic referral of multiple gestations. Prior to implementation of any of these rather costly solutions, we believe that a larger, multi-institutional, statewide study is necessary to assess the need for and availability of maternal transport in North Carolina. □

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Table 1

	Mean	S.D.	Range
Calls made per transfer	2.6	12.5	1-15
Calls made per transfer excluding initial acceptance	3.8	2.6	—
Institutions caller per physician	2.4	1.7	1-8
Institutions called per physician excluding initial acceptances	3.3	1.7	—
Minutes spent per transfer	61	95	10-210
Minutes spent per transfer excluding initial acceptances	102	142	10-250

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Introduction

Last May, the house of Delegates adopted the "NCMS Position on Indigent Care" which includes twenty-seven recommendations aimed at improving access to care for the medically indigent. The American Medical Association has also called for increased public service by physicians to address the tremendous problem of people too poor to get the medical care they need.

Your state medical society has some important functions in this effort: educating its members on opportunities for public service and supporting them in their volunteer work. Recently the North Carolina Medical Society designed a voluntary Medicare assignment program called North Carolina Medicare Partners. We are now working with several local medical societies to establish pilot Medicare Partners programs.

Through the Legislative Committee, the North Carolina Medical Society is also addressing many of the indigent care initiatives that require additional state funding or statutory changes. For instance, the Society is supporting legislation that would improve access to health care for uninsured children, expand the coverage of the Children's Special Health Services Program, and expand coverage under the state's Medicaid Program.

Participation in the Medicaid Program—the federal/state/local program established to provide medical care for the poorest of the poor—is one way we can do our part. Several years ago, many physicians stopped participating in Medicaid because of paperwork problems or because of low rates of reimbursement. However, in recent years there have been significant improvements in the North Carolina Medicaid Program including expansions in coverage, higher reimbursement rates, and smoother administration. These improvements should make it easier for physicians to participate.

This article gives us a clear picture of what Medicaid is, who it serves, how it is administered, and how it has been improved. Please take a moment to read the article. If you are not already accepting Medicaid patients, I urge you to consider Medicaid participation as one of the ways in which you can meet the goals of public service set by your profession.

—Ernest B. Spangler, M.D., President
North Carolina Medical Society

What is Medicaid?

Medicaid is a jointly administered federal/state program that pays for health care services for certain groups of poor people. General rules about who can qualify for Medicaid and what services are covered are set by the federal government along with the state legislature. State Medicaid agencies—in North Carolina, the Division of Medical Assistance—operate the program within these guidelines. County departments of social services determine recipient eligibility for Medicaid. The federal government oversees state operations and disallows payments and imposes penalties if the state does not adhere to federal policies. Federal, state, and county governments share in the cost of Medicaid, 68%, 27%, and 5%, respectively.

Who is Eligible for Medicaid?

To be eligible for Medicaid, an individual must be poor *and* must fit into one of the following general categories:

- 1 a recipient of Aid to Families with Dependent Children (AFDC)
- 2 a pregnant woman or a child up to age three
- 3 a person age 65 or older
- 4 a disabled person under age 65
- 5 a blind person
- 6 a child in foster care or an adoptive home
- 7 a family with children below age 21 or an individual below age 21

In 1988, North Carolina Medicaid paid for medical services for more than 404,000 people.

How Poor Must You Be To Be Eligible for Medicaid?

In North Carolina, a family of three receiving AFDC receives \$3,192 per year (\$266/month). AFDC recipients automatically qualify for Medicaid. An aged, blind, or disabled couple must have annual income of less than \$3,700 to qualify for Medicaid. A pregnant woman can have an annual income of no more than \$8,020 to qualify.

Some people become eligible for Medicaid because of high medical bills. These individuals begin with income above the Medicaid guidelines, but “spend-down” into the program when high medical bills are subtracted from income to determine eligibility. Nonetheless, these “medical needy” individuals must also fit into the categories outlined above.

To put these income standards in perspective, a person working full-time and earning minimum wage makes \$6,968 in a year. This small income is more than twice that allowed to qualify as a family of three for Medicaid.

As these figures show, Medicaid is available only to the poorest of the poor, and only then if categorical requirements are met. Individuals and families who qualify for Medicaid do not have extra money to pay health care expenses beyond what Medicaid will pay. For this reason, if you participate in the Medicaid program you must accept the state payment as payment in full and not bill the Medicaid patient.

How Is the Medicaid Budget Spent?

In fiscal year 1988, the North Carolina Medicaid program spent \$982 million. Ninety-five percent of this amount was spent for health services and 5% for state and county administration.

Although aged, blind, and disabled persons account for only 33% of those eligible, 72% of the budget was spent for their health services. In contrast, AFDC recipients represent 67% of those eligible but they used only 28% of the budget.

Much of the North Carolina Medicaid budget is spent for long-term care services. Forty-two percent of the budget is spent for patients in nursing homes and institutions for the mentally retarded. Many nursing home patients start out as private pay patients but after a short period of time expend their resources and become eligible for Medicaid.

In fiscal year 1989, North Carolina Medicaid will spend more than \$1 billion for health services.

How Much Does Medicaid Spend for Physician Services?

In fiscal year 1988, North Carolina private physicians were paid \$69 million by the Medicaid Program, an increase of 15.9% over fiscal year 1987. This amounts to 7.42% of total provider payments.

In fiscal year 1988, 11,882 North Carolina physicians provided services to Medicaid recipients.

Why Are Medicaid Payments Low?

It is true that Medicaid payments have not kept up with inflation or charges, but the Division of Medical Assistance (DMA) is trying to improve the situation. The General Assembly approved an overall 5% increase in 1988 and another 5% increase in 1989. Rather than apply the fiscal year 1988 5% increase across the board, the DMA channelled the entire increase to primary care cognitive services (i.e., office visits, hospital and nursing home visits, and consultation). In fiscal year 1989, DMA is targeting the increase to selected procedures. DMA also increased prena-

tal care and prenatal/delivery fees by 46% and 53% respectively in fiscal 1988.

Why Is There So Much Red Tape Involved in Serving Medicaid Patients?

Unfortunately, there is some "red tape" involved in serving Medicaid patients. But this is true for all patients with insurance or other third-party resources. A certain amount of so-called "red tape" is necessary to ensure that tax dollars assist only those who are eligible for Medicaid services and that these services are of the highest possible quality. Nonetheless, the DMA is committed to keeping this red tape down to the minimum required by state and federal laws and is always willing to work with physicians and other providers to try to ease this burden.

Why Is It so Difficult to Get a Claim Paid?

Last year the North Carolina Medicaid Program processed nine million claims. Only 12% were denied. As a rule, 99% of claims submitted correctly are processed within 30 days of receipt. When a claim is not filled out precisely, however, payment may be delayed or the claim returned for correction. A claim passes through a number of audits and edits before it can be paid. These audits and edits check to see, for example, that the procedure performed was appropriate to the age and sex of the patient, that the procedure was consistent with past medical history (e.g., a claim for delivery after the patient had a hysterectomy would warrant further review), that the procedure did not exceed service limits, and that a charge billed separately is not part of a global fee.

For December, 1988, 20% of physician claims were denied, for a variety of reasons. Many of these claims will be paid after corrections are made, but payment delays can be avoided in the first place through careful attention to billing requirements.

The Division of Medical Assistance is committed to helping doctors' offices learn how to get their claims paid promptly and with as little extra work as possible.

What Can Doctors Do to Make Sure They Get Paid Quickly?

The key to success in getting paid quickly is a well trained billing staff and a doctor who is interested in the billing staff's performance. Medicaid is willing and able to help doctors and their billing staffs receive payment with as little inconvenience as possible. Medicaid offers training sessions for billing staffs and will visit doctors' offices to help staff,

if necessary. Electronic Data Systems Federal (EDSF), the Medicaid claims processor, can provide doctors with free software that helps speed up the billing process and makes it more accurate.

Why Should I Bother?

Every person, rich or poor, needs a family physician. If a person doesn't have a physician he or she ends up using the emergency room or wandering from doctor to doctor with no physician taking charge. Frequently, absence of primary care leads to more expensive hospital care and more serious chronic illness.

Each physician can help by taking responsibility for Medicaid patients and medically indigent patients. Many doctors are doing this now, but more participation is needed so that all poor people have a doctor and the load is evenly shared. In many areas of North Carolina, Medicaid recipients still have difficulty finding a doctor.

How Can I Become a Medicaid Provider?

If a physician is already enrolled as a Blue Cross and Blue Shield (BC/BS) provider, he or she automatically receives a Medicaid provider number. The provider need only submit a claim on a Health Care Financing Administration (HCFA) #1500 claim form to receive Medicaid reimbursement.

If a physician is not yet a BC/BS provider, he or she should write to BC/BS to request a provider number for billing purposes. The address to write is: BC/BS, PO Box 2291, Durham, NC 27702. Manuals and other necessary materials will be sent directly to the doctor for use in billing.

Where Can I Go for Help if I Have a Problem with a Claim?

Help with problem claims is available by phone from your Medicaid provider representative at EDSF: 1-800/366-3373. You may also call this number if you want additional information on the Medicaid Program. Provider manuals and monthly bulletins are available upon request. □



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Eben Alexander, Jr., M.D., Receives the Distinguished Service Award of the American Medical Association

More than 60 friends and admirers gathered in Chicago on June 17 for a reception and dinner honoring Eben Alexander, Jr., M.D., of Winston-Salem as recipient of the prestigious Distinguished Service Award of the American Medical Association. On the following day at ceremonies of the AMA's House of Delegates, James E. Davis, M.D., North Carolina's own retiring President of the American Medical Association, made the presentation and cited the extraordinary personal and professional contributions to medicine which earned Dr. Alexander this most coveted honor.

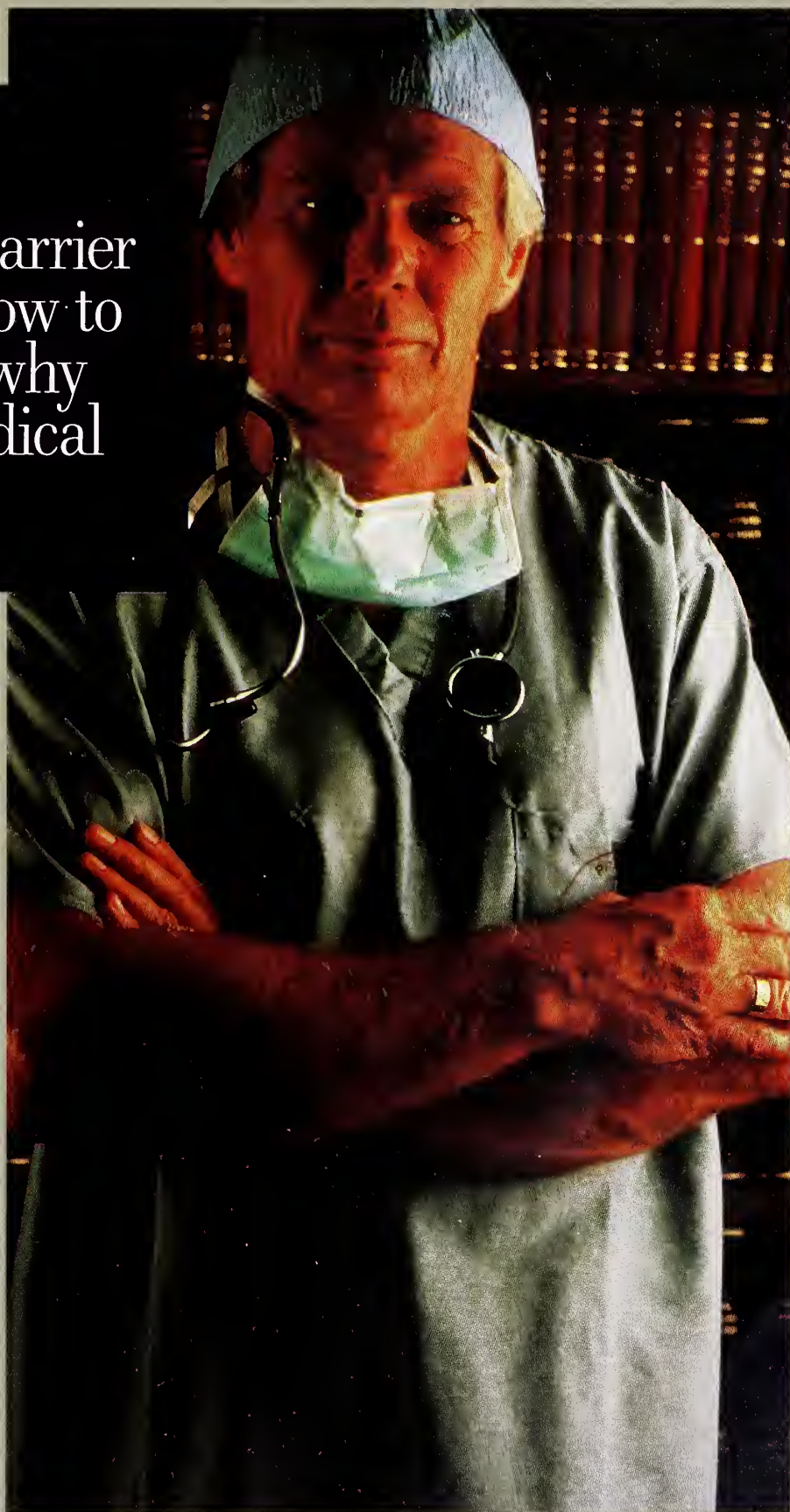
Dr. Alexander and his wife Betty were entertained at the dinner with roasts and toasts recalling shared experiences over the years. Louis deS. Shaffner, M.D., long-time friend and colleague, presided and served as chief roastmaster. Joining him in the affectionate ribbing and obviously emotional testimonials were Doctors Jesse Caldwell, Bryant Galusha, Tom Dameron, James Thompson, John Fagg, James Jones, and John Glasson. Many who could not be present sent messages of congratulations and best wishes.

Dr. Alexander more than held his own with his tormentors, refreshing their faulty memories about the true facts of the events. And typically, he shared with others the credit for whatever successes led to that evening and that award.

The AMA's Distinguished Service Award is presented for meritorious service in the science and art of medicine. It consists of a suitable medal, a \$2,500 stipend, and a citation rendered by the Board of Trustees. Dr. Eben Alexander is a most worthy recipient and all North Carolina physicians share a reflected glory in his achievement. □



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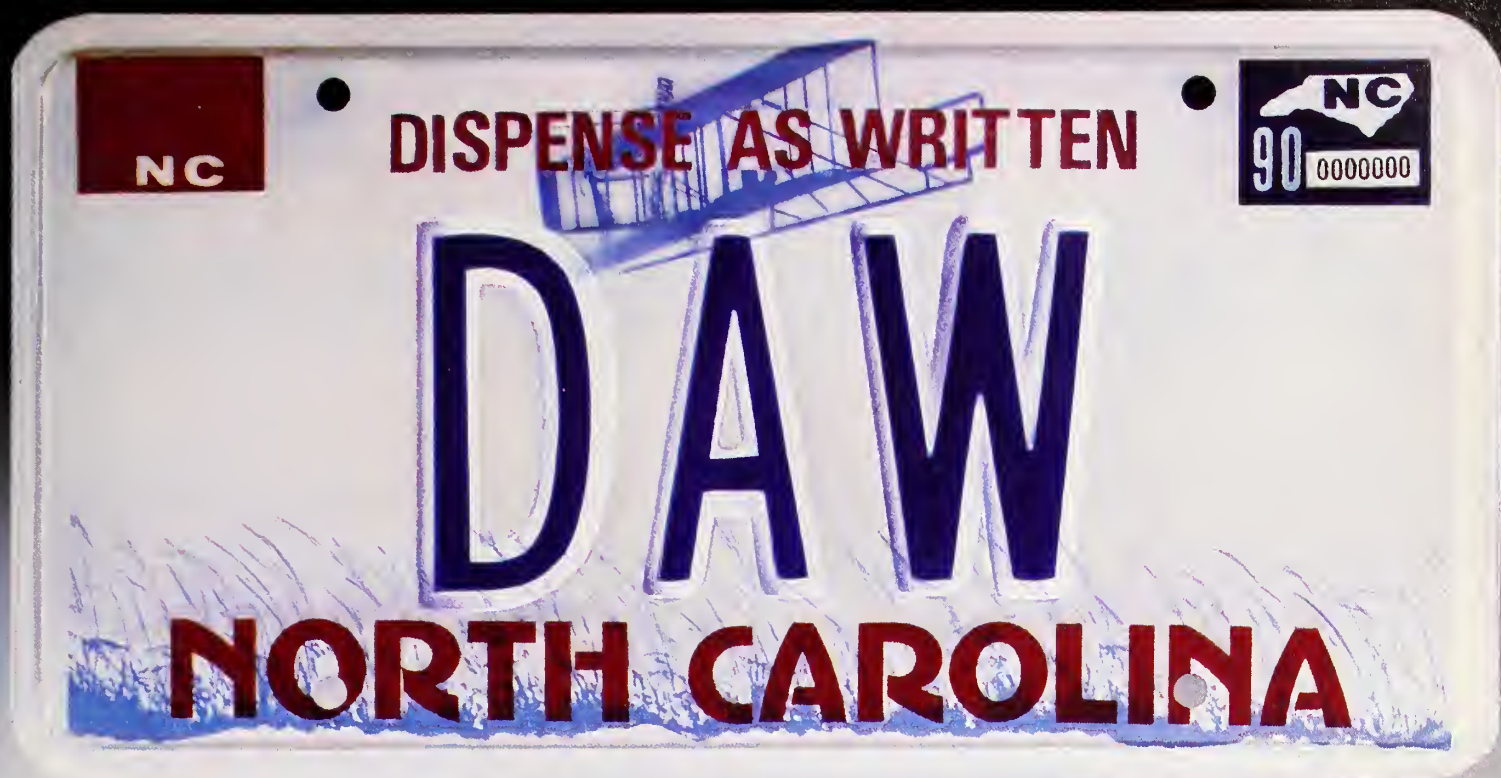
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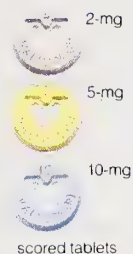


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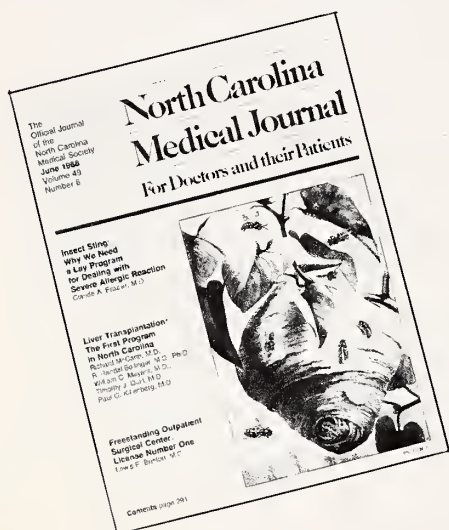
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VOLUME 50 / NUMBER 8 / AUGUST 1989

Sun Protection

William M. Hendricks, MD

Sunscreens — what they do and why they do it

Sunscreens are a remarkable group of chemicals that have revolutionized our ability to protect ourselves from the sun. When applied to the skin they help shield and protect not only our flesh but also the blood circulating through it from the harmful rays contained in sunlight. These rays cause the all-too-familiar sunburn, as well as premature wrinkling, cataracts and skin cancer. Since the damaging effects of ultraviolet rays are cumulative over a person's entire lifetime, the total amount of sun exposure is critical. Therefore, the sooner you learn to protect your skin and eyes from the sun, the healthier you will remain.

Sunlight

To understand better exactly what sunscreens do, you must know more about our life-giving sunlight. Sunlight is composed of various wavelengths, mostly visible and infrared (heat) rays, but also ultraviolet rays (see Table 1). The relative amounts of these rays vary widely due to atmospheric

conditions and environmental pollution, as well as the season of the year, distance from the equator (latitude) and height above sea level (altitude). Ultraviolet rays are presently thought to exert the most important biological effects on the skin. They have arbitrarily been divided into UVC, UVB, and UVA wavelengths. Fortunately for us, almost all of the UVC wavelengths (200 to 290 nanometers) and 95% of the UVB wavelengths (290 to 320 nanometers) produced by the sun are absorbed by the ozone layer in our atmosphere about 15 miles above the Earth's surface.

Table 1

Sunlight reaching the Earth's surface

Type of Rays	Wavelengths	Percentage of Sunlight
Visible	400-760 nm	40—50%
Infrared (heat)	760-1800 nm	40—50%
Ultraviolet A (UVB)	320-400 nm	2—2.8%
Ultraviolet B (UVA)	290-320 nm	less than 0.2%

Dr. Hendricks is with the Asheboro Dermatology Clinic PA, 407 South Cox Street, Asheboro, NC 27203.

UVB rays cause reddening of the skin and sunburn (see Table 2). In fact, they are 1000 times more likely to cause redness of the skin than UVA rays. UVB rays also produce effects on the immune system and the genetic material in the skin cells and damage the lenses in the eyes. In one way UVB rays are beneficial—they do stimulate the production of vitamin D in the skin. The recommended daily requirements (RDA) of vitamin D, however, are readily met by most balanced diets, especially those containing vitamin D-enriched foods such as margarine, butter, bread and milk. Sunlight contains more than four times as much UVB rays between the hours of 10:00am and 2:00pm than it does earlier in the day or later in the afternoon.

Despite these important biological effects, UVB rays do not penetrate the skin very deeply—90 to 95% of them are absorbed by the skin's top layer, the epidermis. Approximately 50% of UVA rays penetrate the epidermis, altering and homogenizing the proteins in the second layer of the skin—the dermis. As a result, the skin loses its elasticity and firmness, becoming wrinkled and furrowed. UVA rays also damage the superficial blood vessels in the skin and enhance the redness caused by UVB rays. UVA rays have effects on the immune system, the blood circulating through the skin and the lenses in the eyes. Since visible and infrared wavelengths penetrate the skin deeper than ultraviolet wavelengths, they also may have important biological effects that have not been fully appreciated. For example, infrared wavelengths have been shown to cause skin cancer, while visible rays cause some forms of solar urticaria.

Table 2

Properties of ultraviolet light

Type and properties

Ultraviolet C (UVC) —	kills bacteria, skin redness
Ultraviolet B (UVB) —	skin redness, skin aging, sunburn, skin cancer, tanning, effects on immune system, cataracts
Ultraviolet A (UVA) —	skin redness, skin aging, promotion of skin cancer, tanning, effects on immune system, cataracts

Commercial sunscreens

There are basically two types of commercial sunscreens—chemical sunscreens which absorb ultraviolet rays and physical sunscreens which reflect and absorb ultraviolet, visible

and infrared rays (see Table 3). Anthranilates, PABA, PABA esters, and salicylates block especially UVB rays, while azobenzones, benzophenones and cinnamates absorb primarily UVA rays. Since recent research indicates that an effective sunscreen should block both UVA and UVB wavelengths, different chemical sunscreens have been combined in order to achieve a greater range of ultraviolet light protection. Chemical sunscreens may also be used in combination with physical sunscreens. Titanium dioxide, for example, has been added to PABA esters and benzophenones in order to help block visible and infrared wavelengths. Recently, micronized silica has been shown to block up to 50% of visible and infrared wavelengths between 600 and 2600 nanometers. The race to find safer and more effective sunscreens with UVA, UVB, visible and infrared protection is now underway.

Table 3

Common ingredients in chemical and physical sunscreens

Chemical sunscreens	Physical sunscreens
anthranilates	iron oxide
azobenzones	kaolin
benzophenones	magnesium silicate (talc)
camphor	red veterinary petrolatum (RVP)
cinnamates	silica (micronized)
PABA & PABA esters	titanium dioxide
salicylates	

How to choose a sunscreen

Before you choose a sunscreen, you must ask yourself four questions:

1. What type of skin do I have?

Not everyone responds to sunlight in the same way. People generally fall into one of six groups depending upon whether they tan or get a sunburn after 30 to 40 minutes of exposure to midday summer sun (see Table 4). Since melanin is the body's most effective sunscreen, people with dark complexions already have sun protection built into their skin. No one, however, is completely exempt from the harmful effects of sun exposure, and even darkly pigmented people can develop light-sensitive skin disorders. Unfortunately, about 15% of the population have Type I skin, and will not tan no matter how long they stay out in the sun. If you tan poorly or not at all, do not overexpose your skin to the sun or get in a tanning booth or sunbed.

Table 4**Skin types and recommended sunscreen protection factor**

Skin type	Sunburn and tanning history	Recommended SPF
I	Always burns easily; never tans	15 or more
II	Always burns easily; tans minimally	15 or more
III	Burns moderately; tans gradually and evenly	10 to 15
IV	Burns minimally; always tans well	6 to 10
V	Rarely burns, tans profusely	4 to 6
VI	Never burns; deeply pigmented (black)	none indicated

This is only a guide. The classification of patients into skin types is not entirely satisfactory. Do not confuse redness with tanning! Also, many people tan better on some areas of the body than on others. If you have a combination of skin types, protect the areas that burn easily with a sunscreen that has a higher SPF.

2. Do I have any medical problems or am I taking any medications that may make my skin unusually sensitive to sunlight?

If you have any of the skin problems listed in Table 5, you need to use a sunscreen on a regular basis. Your choice of sunscreen will depend upon the range of light that makes your skin problem worse. Please check with your physician! People with any of the skin problems listed in Table 6 should also protect their skin from the sun. Finally, if you are taking any of the medications listed in Table 7, consider wearing a sunscreen, since there have been reports of light-sensitivity associated with these medicines.

Table 5**Some light-sensitive disorders**

Condition	Wavelengths that worsen this condition (nm)
Drug-induced photosensitivity	290-450
Lupus erythematosus	290-320
Pellagra (tryptophan-Vitamin B3 deficiency)	290-320
Photo-contact dermatitis	290-450
Polymorphous light eruption	290-400
Porphyria (disorder of red blood cell metabolism)	390-600
Solar urticaria (hives caused by sunlight)	290-515
Vitiligo (loss of pigment cells)	290-400

3. Which sun protection factor (SPF) is the best one for my skin?

Effective sunscreens must protect the skin against both UVB and UVA rays. The ability of a sunscreen to protect the skin against UVB rays is measured in sun protection factors (SPF)—the higher the SPF, the greater the protection. The sun protection factor equals the amount of sunlight that will cause slight redness of the sunscreen-protected skin divided by the amount of sunlight that will cause slight redness of unprotected skin. For example, a sunscreen with an SPF of 10 allows you to stay out in the sun 10 times longer before you get redness of your skin. If it takes 20 minutes in the sun to turn your skin red without a sunscreen, it will take 200 minutes (10 x 20 minutes = 200 minutes) if you use a sunscreen with an SPF of 10.

Table 6**Other disorders requiring sunscreens**

- acne (10 to 20% are light-sensitive)
- aged skin
- albinism (hereditary disorder of the pigment cells)
- eczema (some patients are light-sensitive)
- erythema ab igne (heat damaged skin)
- herpes simplex (sunlight may "trigger" attacks)
- melasma (sunlight increases skin pigmentation)
- methotrexate therapy (used for psoriasis, rheumatoid arthritis, etc)
- perioral dermatitis (acne-like rash around the mouth)
- psoriasis (10% are light-sensitive)
- PUVA therapy (psoralens plus UVA light used for therapy of psoriasis and vitiligo)
- radiation damaged skin
- Retin-A (tretinoin) usage
- rosacea (heat and sunlight may cause flare-ups)
- skin cancer
- surgery patients (especially following chemical peels, dermabrasion, etc)
- xeroderma pigmentosa (hereditary disorder of the skin's DNA repair system)

Most sunscreens now have SPFs between 2 and 50 prominently displayed on their packaging. Unless you suffer from extreme photosensitivity (see Table 5), sunscreens with sun protection factors of less than 15 are probably sufficient. In fact, even at the equator if you stay outside from sunrise to sunset it is difficult to get more than 15 times the amount of ultraviolet light necessary to turn your skin red. This is the reason that SPFs of greater than 15 are probably more for the promotion of the sunscreen than for the protection of the

consumer. The fairer your skin and the less you are able to tan, however, the more protection you need in your sunscreen (see Table 4). Furthermore, all data regarding the sun protection factor of a sunscreen should be interpreted cautiously, since laboratory values do not always correlate with the day-to-day experiences of people who actually use them. The labels on sunscreens also do not tell you how effective they are against UVA rays. In the future sunscreens may carry SPF ratings for both UVA and UVB rays.

Table 7

Some common photosensitizing drugs and chemicals

aminobenzoates	in sunscreens
amiodarone	Cordarone
coal tars, wood tars, and petrolatum products	Estar, Fotobar, LCD (liquor carboniss detergens), psori-Gel
furocoumarins	in cosmetics, limes, celery, parsley, etc
psoralens	Oxsoralen Ultra, Trisoralen
griseofulvin	Fulvicin, Grisfulvin, Grisactin, Gris-PEG
halogenated salicylanilides, carbanilides and phenols	antibacterial agents used in deodorant soaps, antiseptics and cosmetics
methylcoumarin	in cosmetics
musk ambrette	in cosmetics
nalidixic acid	NegGram
PABA esters	in sunscreens
phenothiazines	Phenergan, Prolixin, Thorazine, Trilafon
piroxicam	Feldene
quinidine	Quinaglute
quinine	
sulfonamides	Bactrim, Gantanol, Gantrisin, Pediazole, Sepira
sulfonylureas	DiaBeta, Diabinese, Glucotrol, Micronase, Orinase
tetracyclines	Achromycin-V, Minocin, Sumycin (especially demeclocycline [Declomycin])
thiazides	
chlorthiazide	Diupres, Diuril
hydrochlorthiazide	Aldactazide, Aldoril, Dyazide, Esidrix, HydroDIURIL, Ser-Ap-Es

4. Am I allergic to any of the ingredients in the sunscreen?

If you break out in a rash from your sunscreen before or after sun exposure, discontinue it immediately. People who are allergic to benzocaine, paraphenylenediamine (used in some hair dyes), procaine, sulfonamides, thiazides, or other related compounds may also be allergic to PABA (para-aminobenzoic acid) or PABA esters. Benzophenones, cinnamates and fragrances also cause reactions to sunscreens. If you are having problems with a sunscreen, try switching to another brand that does not contain the same ingredients (see Table 8). Test it first on a small area of skin with and without sun exposure to be certain that you do not develop a rash. There are some allergic reactions to sunscreens that occur only after the sunscreen is exposed to sunlight. If you are allergic to both PABA and benzophenone, try using one of the PABA-free, benzophenone-free sunscreens listed in Table 8.

5. Other considerations

The cosmetic acceptability and "performance" of a sunscreen are also important considerations. These include its ability to stay on the skin after swimming or sweating as well as its resistance to being rubbed off. Sunscreens that are "water-resistant" generally will not wash off after 40 minutes of swimming, while "waterproof" sunscreens stay on the skin up to 80 minutes. Most sunscreens, however, rub off on your towel or clothing, which is the reason it is important to reapply a sunscreen from time to time especially after towel-drying off or changing clothing. Physical sunscreens are especially useful for small areas of the body such as the nose, lips, shoulders and around the eyes (see Table 9). Since most physical sunscreens block ultraviolet, visible and infrared wavelengths, they are actually better "sun blocks" than most chemical sunscreens, although they are not as cosmetically elegant. Finally, do not forget to protect your lips! Wear lipscreens with SPFs of 15 or greater and apply them frequently (see Table 10).



Table 8

Some chemical sunscreens (with SPFs)

PABA, PABA Esters	Benzophenones & PABA Esters	Benzophenones & Cinnamates	PABA-free & Benzophenone-free
Bain de Soleil (4,10)	Bain de Soleil (6, 15, 25)	Baby Shield (20, 25)	A-Fil (8-15)
Block Out (15)	Banana Boat (15)	Bullfrog (36)	Carbide (4, 8)
Bullfrog (18)	Block Out (15)	Carbide (29)	Coppertone (2, 4)
Carbibe (2)	Cancer Garde (30)	Coppertone (8, 10)	Maxafil (6-8)
Coppertone Spray (2)	Child Garde (30)	Coppertone Water	RVP
Eclipse (5, 10)	Coppertone (4, 8, 15, 30+, 44)	Babies (15, 25)	
Hawaiian Tropic (2)	Eclipse (15)	Fruit of the Earth (30+)	
Native Tan (4)	Fruit of the Earth (15)	Hawaiian Tropic (2, 4, 15, 25)	
Pabanol (4)	Hawaiian Tropic (6, 8, 10, 15, 20, 22, 30)	Johnson's Baby (15)	
Presun (4, 8)	Native Tan (10, 15)	Native Tan Baby (25)	
Sea & Ski Baby (2)	Nivea (15)	Neutrogena PABA-free (15)	
Sea & Ski (4, 6)	No-Ad (23)	Piz Buin (8)	
Snootie (10)	Noskote (15)	Presun (15, 29)	
Summer's Tan	Photoplex (15)	SolBar PF (15, 50)	
	Presun (8, 15, 39)	Sundown (25, 30)	
	Ray Block (15)	Super Shade (15, 25)	
	Sea & Ski (30)	TI-Screen (15)	
	Shade (6, 8)	Vaseline Intensive Care (8, 25+)	
	SolBar Plus (15)		
	Sundown (4, 6, 8, 15, 20, 24)		
	Super Shade (15)		
	Total Eclipse (15, 20)		

Please read the labels on sunscreens carefully. Several companies manufacture different chemical sunscreens under very similar trade names. If you are having any difficulty understanding what the active ingredients in a sunscreen are, please check with your pharmacist or physician.

Table 9

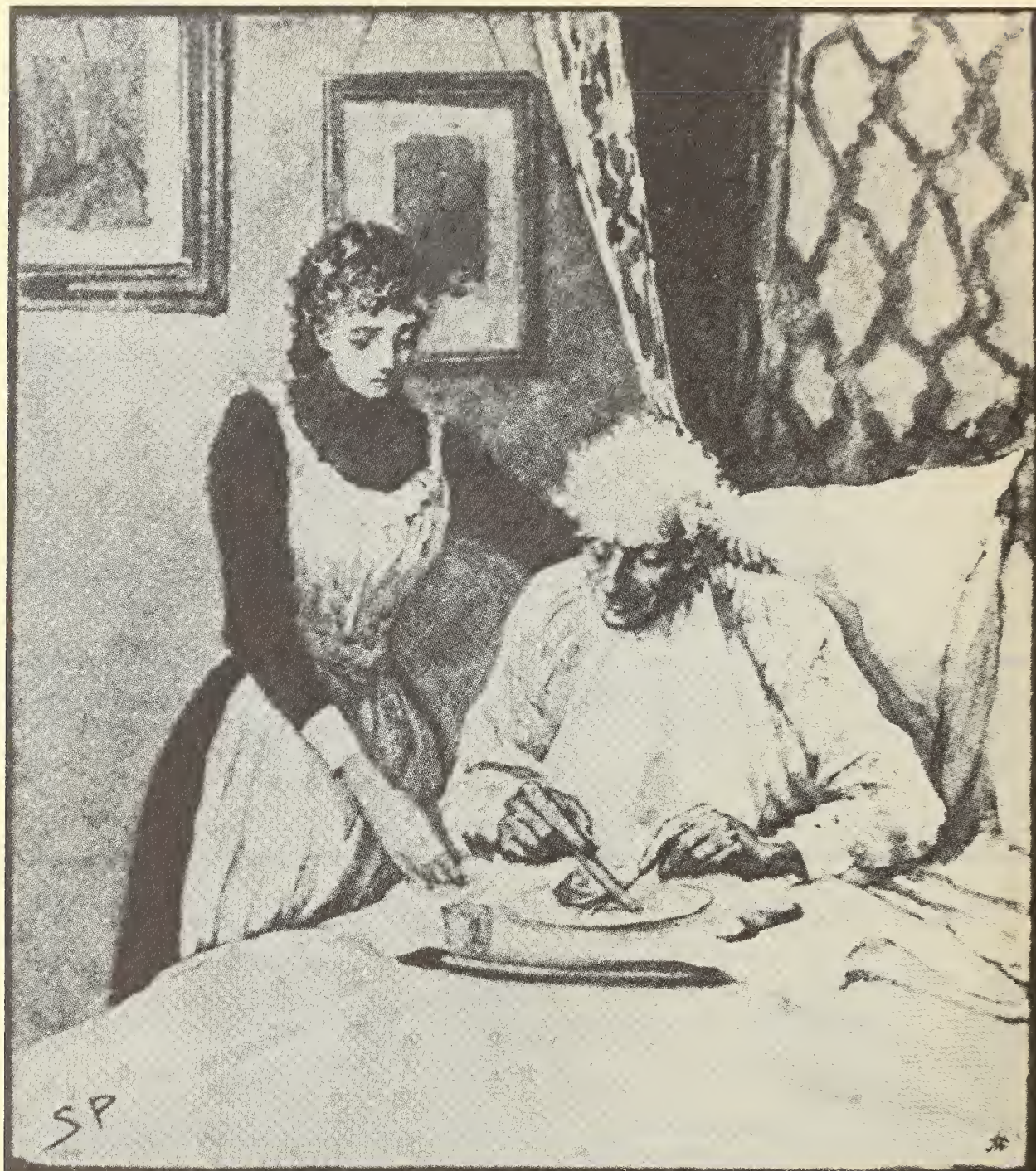
Some physical sunscreens

Trade Name	Ingredients
A-Fil	All contain: titanium dioxide + zinc oxide + magnesium silicate (talc), iron oxide, kaolin or red veterinary petrolatum (RVP)
Clinique	
Covermark	
Reflleta	
RV-Paque	
Shadow	
Solar Cream	
Zinka	

Table 10

Some lip protectants (with SPFs)

Blistik (10)
Chapslick Sunblock (15)
Daily Conditioning Treatment (15)
Eclipse Lip and Face Protectant (15)
Hawaiian Tropic Lip Balm Sunblock (15)
Lipkote by Coppertone (15)
Presun Lip Protector (15)
RVPaba
Zinka (15)



My First Patient

Trina Deal

My first day of my first clinical rotation, I didn't know what to expect. I didn't know what was expected from me. I was dressed like a nurse but I didn't feel like a nurse. I felt like an impostor pretending to be a nurse. I was given my patient assignment, Mr. Wilson in room 28. From the nurses' report I learned that Mr. Wilson was 68 years old. The only other information I received revealed that Mr. Wilson had cancer, widely metastasized. His prognosis was poor and the nurses thought he was "a difficult patient."

I walked slowly down the hall counting rooms, 26, 27, 28. I walked timidly into the room and saw him. The nurses were right. He was an elderly white man. I walked closer and introduced myself. He lay there motionless, expressionless. His eyes were open but he didn't look at me or even blink. He just blankly stared at the ceiling. I stepped softly, so as not to disturb him, to the foot of his bed and picked up his chart. Before reading the doctors' notes, I allowed my eyes to roam the room.

On his nightstand there was a Bible, the leather cover faded and the pages frayed. Looking at the Bible and glancing at Mr. Wilson, I pictured him in a gray suit walking to church every Sunday with the Bible tucked carefully under his arm. When he reached the little white church, I imagined him sitting in the front pew and praying aloud with the preacher. Surrounding his Bible and crowding the bedside table were cards; cards for "Dad," for "My Husband," for "Grandpa," and for "A good friend." Just from looking at these cards I felt I knew Mr. Wilson. When I looked at him lying there in bed, I didn't see the same cancer patient I saw when I first walked into the room. Now, I saw a husband, a father, a grandfather, and a good friend dying of cancer. I never read the doctors' notes. I hung them back on their hook at the end of the bed, walked over to Mr. Wilson and gently held his hand. As I squeezed his fingers, he turned his head and weakly smiled at me. I could tell that even that slight movement was excruciatingly painful. The room was silent as I watched his smile fade; I could hear the cancer gnawing inside him. I sat there for a minute or two, not saying a word, just holding his hand. Ever so slowly, I let go of his hand. "Don't leave" he whispered. I couldn't have left him alone

right then if I had tried. I could tell that he needed my company, my compassion as much as the medication or treatment the doctor ordered. I sat back down beside him wondering where was that "difficult" patient the nurses had described and were so reluctant to care for. Mr. Wilson was not difficult. He was afraid, afraid of dying.

After I assured him he would not be alone, I began my nursing duties. I took his blood pressure, his temperature, his pulse and his respirations. His vital signs were not stable. His blood pressure was low, 90/30, his temperature was high, 101°, his pulse was slow and his respirations were fast and shallow. I left the room just for a minute to report my assessment. The nurse in charge was not alarmed. Her reply startled me, "That's not unusual for a dying patient." She turned and walked away. I returned to Mr. Wilson's room. This time he watched me walk in and he smiled again.

My assignment that morning was to give my patient a complete, head to toe bedbath. This task was traumatic enough for a young nursing student. But knowing that Mr. Wilson hurt all over made the situation even more difficult. I didn't want to add to his misery but I had to do my job. I explained to Mr. Wilson what I needed to do and my hesitation about hurting him. "I'll help you as much as I can. Just move me slowly," he instructed as I began. As I gently bathed him, I couldn't help but notice his emaciated body. Under the covers he hadn't looked so wasted. His skin clung to his bones. I could see his heart pulsating under his ribs. His hips and knees sharply protruded. He was so weak he couldn't even clench his fingers to make a fist. He moaned and groaned each time I moved an arm or a leg, but he always said, "It's not your fault." We were a good team. When we had finished the bedbath he thanked me. All this activity had exhausted him. He lay there breathless. The rest of the shift I spent at his bedside talking with him.

The focus of our conversation was death. It was really a one-sided conversation with Mr. Wilson doing most of the talking and myself doing the listening. He poured his feelings on me. He was ready for death, he told me. The only thing that bothered him was that he was not ready to leave his family and his friends. I tried to put myself in his position but I couldn't. While I was imagining what he must be feeling, Mr. Wilson said the most selfless thing I had ever heard. He said, "I am ready for death so I can end my family's misery." I didn't fully understand what he meant at first. He added,

"They had suffered so by helplessly watching me die. The best thing I could do for everyone is die." How was I supposed to respond to that? I didn't have to. When I looked at him again, he had drifted off to sleep. Watching him sleep, I noticed the tense, tautly drawn expression of pain melt from his face. Silently I left his room.

The next morning I walked quickly down the hall to room 28. Today I felt more sure of myself, more like a nurse; I had Mr. Wilson to thank. I pushed open the door and, looking forward to spending another day with Mr. Wilson, happily said, "Good Morning." To my surprise and disap-

pointment, the room was empty. The bed was neatly made with the "hospital corners" creased on the ends. The tattered Bible was gone from the nightstand and the collection of cards covering the table were also gone. Stunned and confused, I walked to the nurses' station and inquired about Mr. Wilson. "Oh, he died last night in his sleep," was the only reply I received. I walked back to room 28 and sat down. Reflecting on yesterday and remembering the peacefulness on his face, I realized that Mr. Wilson had finally succumbed to death, and I was there for him so he didn't have to go alone. □

"... It is difficult
to get the news from poems
yet men die miserably every day
for lack
of what is found there. ..."

William Carlos Williams,
"Asphodel, that Greeny Flower: Book I"

The Lady with the Lamp: Three Poems

Elsen Lubetsky

1

Within these sober corridors
the lady with the lamp is real.
Like a miracle of temple oil
light pours out yet still maintains
its constant glow.
Care and dedication
accompany her on rounds
quietly walking in her steps.

2

At evening when the long procession
of physicians and visitors departs
the charade is ended.
Nurses have the run of the place
restoring order with a firm hand.
Then one hungers most for
a sign of approval and assumes the best behavior.
It would go hard if one blacked out
failing an adequate response.
Sometimes I hear them
at the station down the hall
laughing and talking in rich southern voices.

3

When I told the nurse I was from New York
her eyes lit up like the Great White Way
and her blonde hair shook
in riffs from a wild Birdland solo.
She'd been there two years before
for the New Year—24 hours
of pure excitement.
Stayed at the St. Regis;
some fellow paid the bills.
Enviously I asked how come
not the Plaza but she'd
never heard of it. She'd seen the tree
ushered in New Year's at crowded
Times Square rode a carriage
in Central Park had drinks at
Emilio's Bar hip deep in doctors
walked along 5th Avenue
taken a taxi to Harlem
been on the IRT. Yes, I said, that's the best way—
when you're young and
someone else picks up the tab.

Your Mother Is in the ICU—Now What?

Michael W. Day, RN, MSN, CCRN*

You've just been told that your mother is in the Intensive Care Unit of the local hospital with a heart attack! What do you do??? Who can you talk to??? What questions do you ask??? What's going to happen to her???

When a member of your family is admitted as a patient to an Intensive Care Unit (ICU), you think of all of these questions, plus a million more. This article will help you decide which questions to ask, when to ask them and from whom you can expect answers. The article will also give you some hints and suggestions to make your family member's stay in the ICU easier on you!

Initial Reaction

The person who initially notifies you that your family member is a patient in an ICU may not necessarily know the patient's condition. Rather than dropping everything that you are doing and rushing to the hospital, it is best to call the hospital, ask for the ICU, and then ask for the attending nurse who is taking care of the patient. The amount of information the nurse will be able to give you depends, to a certain extent, upon how long the patient has been in the ICU. If he or she has just arrived, about the only thing the nurse will be able to tell you is if the patient is stable or not (see table 1, next page). In general, the longer the patient is in the ICU, the more information the doctor and/or nurse will be able to give you. This initial phone call will help you to decide if you need to go to the hospital right away and what information to pass along to other family members. If the patient has expressed specific wishes regarding "heroic measures," then this is the time to make those wishes known!! (See "Definitions of Heroic Measures" box, next page.) When you talk with the nurse, be sure to leave a phone number where you can be reached in the event the patient's condition changes.

The person who can give you the most information will be the doctor. However, because of various tests and procedures, the doctor may not have the answers to all of your

questions right away. If you leave your phone number with the nurse, the doctor will usually get back in touch with you as soon as he or she receives the test results and determines the specific problems.

If the patient's condition is such that you feel a need to go to the hospital, please do so in a safe manner! You will be under a great deal of stress and need to be extra careful driving in traffic. It might be better to have a friend drive you so that you don't have to worry about the traffic. Your friend's presence can also provide you with support at the hospital.

Arrival at the Hospital

When you arrive at the hospital, locate the ICU and let the staff know that you are in the building and where you will be staying (waiting room, coffee shop). If you leave the ICU area for any reason, let the staff know where you are going and when you will return. The doctor will usually be able to talk with you at this time and answer any questions you may have. It is always a good idea to keep paper and pen handy to write down any questions that might arise after talking with the doctor or nurse. For a variety of reasons, you may not be able to see the patient immediately, but the attending nurse will have you see the patient as soon as possible.

Before that happens, the doctor and/or nurse will usually tell you specifically how the patient is doing and how he or she looks. This preparation is important because the patient you will see in the bed may not look like your family member. The patient may have several intravenous (IV) lines to deliver fluid and medication. The patient may be intubated (See "Intubation" in Definitions of Heroic Measures" box, next page) and unable to talk. There may be tubes from the patient to various kinds of containers. But most of all, the patient is still your family member! Feel free to hold hands, touch and talk to him or her. Even patients in a deep coma are able to hear, even though they may not be able to respond. Ignore all of the equipment surrounding the bed, but please don't touch any of it.

The very nature of an ICU is such that numerous treatments are carried out to help patients get better. Most of these treatments involve various kinds of equipment that flash lights, display tracings and numbers and make noises.

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Table 1
Level of Patient's condition

Stable—Vital signs (blood pressure, pulse, etc.) are normal

Serious—Vital signs may be abnormal but are responding quickly to current treatment

Guarded—Vital signs are abnormal but are responding slowly to current treatment

Critical—Vital signs are abnormal and are not responding to current treatment

As you become more familiar with the ICU, the nurses will explain what the equipment does and how it helps the patient. Nurses are well aware of how threatening the ICU can be to anyone who doesn't work there, and they usually will make a dedicated effort to answer all of your questions simply and clearly. Again, it is a good idea to carry pen and paper around with you so that you can write down any questions that may come up between your visits to the ICU.

Most ICUs have specific policies regarding visiting patients. Please follow them as much as possible. However, if there are unusual circumstances within your family, such as a relative coming in late from out of town, or if the patient is critically ill, talk with nurses to arrange more liberal visiting. You may also use the visiting time to talk with the attending nurse as to how the patient is doing at that moment.

The doctor will give you updates on the patient's condition, prognosis and problems as necessary. The attending nurse will be able to tell you how the patient rested, how the previous few hours have been and what may be expected in the next few hours. The doctor and the nurse will work together to provide you with the information you need to be assured that all that is possible is being done for your family member. If you have a question for the nurse that he or she is unable to answer, the nurse will notify the doctor, who will either provide the nurse with an answer or call to talk with you directly.

The Waiting Game

After your family member has been settled in the ICU and you have had time to deal with the shock of the events of the past few hours, you will settle in for the "Waiting Game." The Waiting Game begins when your family member is admitted as a patient in an ICU and ends when he or she is transferred to the "regular" floor, is transferred to another hospital for further treatment, or dies. Although most ICU patients stay for only a few days, there are those patients whose illnesses require that they stay in the ICU for long periods of time, sometimes even months. As each individual

situation is unique, there is no absolute, certain way to predict how long a patient will remain in the ICU. We recommend that you not spend all day, every day, waiting at the hospital. Please go home, or to a friend's or relative's house, if possible. The tension and stress of staying in an ICU waiting room 24 hours a day is incredible!

Most hospitals have specific waiting rooms or areas that are located near the ICUs. They are the best place to wait between visits to the ICU, so that if the nursing staff wants to find you, they will be able to. The size of the waiting rooms will vary from small rooms that used to be patients' rooms to large waiting areas with coffee, comfortable chairs and televisions. As you become familiar with the waiting room, you will probably develop an attachment to a particular chair or "spot" in the room, to call your own. You will also begin to talk with the relatives of the other patients, comparing experiences and feelings. Even with this concern for the people you have met in the ICU waiting room, please do not ask the nurses or doctors for information regarding other patients, as it is a violation of the patient's privacy.

There are many people involved in the care of your family member, and all of them are also concerned about you. If you have any needs, such as a blanket, or just someone to talk to, talk with the nursing staff. If the nurses are unable to spend time with you, most hospitals have chaplains available to help you sort out your feelings. There are also social workers who are adept at dealing with the massive insurance papers involved and who can help you with other problems as well.

Definitions of Heroic Measures

CPR—Pumping up and down on the chest to keep the heart beating, after it has stopped beating on its own.

Intubation—Placing a tube the size of a finger into the windpipe, usually through the mouth, to deliver oxygen to the lungs or remove secretions from the lungs or windpipe.

Ventilator—A machine that forces air in and out of the lungs when a patient is unable to breathe enough on his own; requires intubation.

Code or Code Blue—Any combination of above, plus various drugs, that are used when a person's heart stops beating effectively.

No Code or No Code Blue—The decision of the family and the physician to not start any of the heroic measures listed above, in the event that the heart stops beating effectively.

When ICU Care Is No Longer Needed

Again, your involvement with the ICU ends when your family member is transferred to the "regular" floor, is transferred to another facility for further treatment, or dies. Each of these events creates special stresses for the family members of the ICU patient.

For the patient transferred to the floor, be assured that your family member will be transferred only when he or she no longer requires the intense nursing care of the ICU. The nurses in the ICU will be giving a detailed report to the floor nurses to ensure the continuity of care. You will need to get to know, and be comfortable with, a whole new nursing staff, but of course the doctors will remain the same. You will also have to acquaint yourself with the surroundings of the new floor, but you will do so with the knowledge that your family member is out of the ICU.

If the patient is transferred to another facility, the nurses in the ICU will handle all of the arrangements and make sure that the receiving hospital has a detailed report of the patient's care and a complete copy of the care record. They will usually try to identify who you need to talk to, and where to find them, at the receiving institution. You will be able to see your family member prior to the transfer. Due to insurance restrictions, ambulances may not let you ride with them, so you need to make some arrangements to go to the receiving hospital.

In the course of life, death is inevitable and is sometimes the end of a patient's stay in the ICU. If this should happen with your family member, realize that we, as health professionals and as people, see and feel your pain. If your family member is close to dying, visiting hours are usually ignored to allow you to spend as much time as possible together. We will do anything we can to make this very hard time easier for you. Please feel free to talk with us or ask for a chaplain. After the death, you may spend as much time as you need with your family member. The doctor or nurse will need to ask you specific questions about your wishes regarding the Gift of Life (see box), funeral home arrangements, and the patient's personal belongings. We will do everything in our power to assist you in this time of grief.

Conclusion

This article was written to provide you, the lay public, with some information to help ease the shock and emotions involved in having a family member admitted to an ICU. The most important thing to remember is that we, as doctors and nurses, need to hear what you want from us, be it information, prognosis, chance of survival, or where to find a cup of coffee and a newspaper. We are here to help you through a trying time in your life, and we need to hear from you what you want. Talking to us will help you understand what is going on with your family member, help us understand our patient better, and help us all get through to tomorrow. □

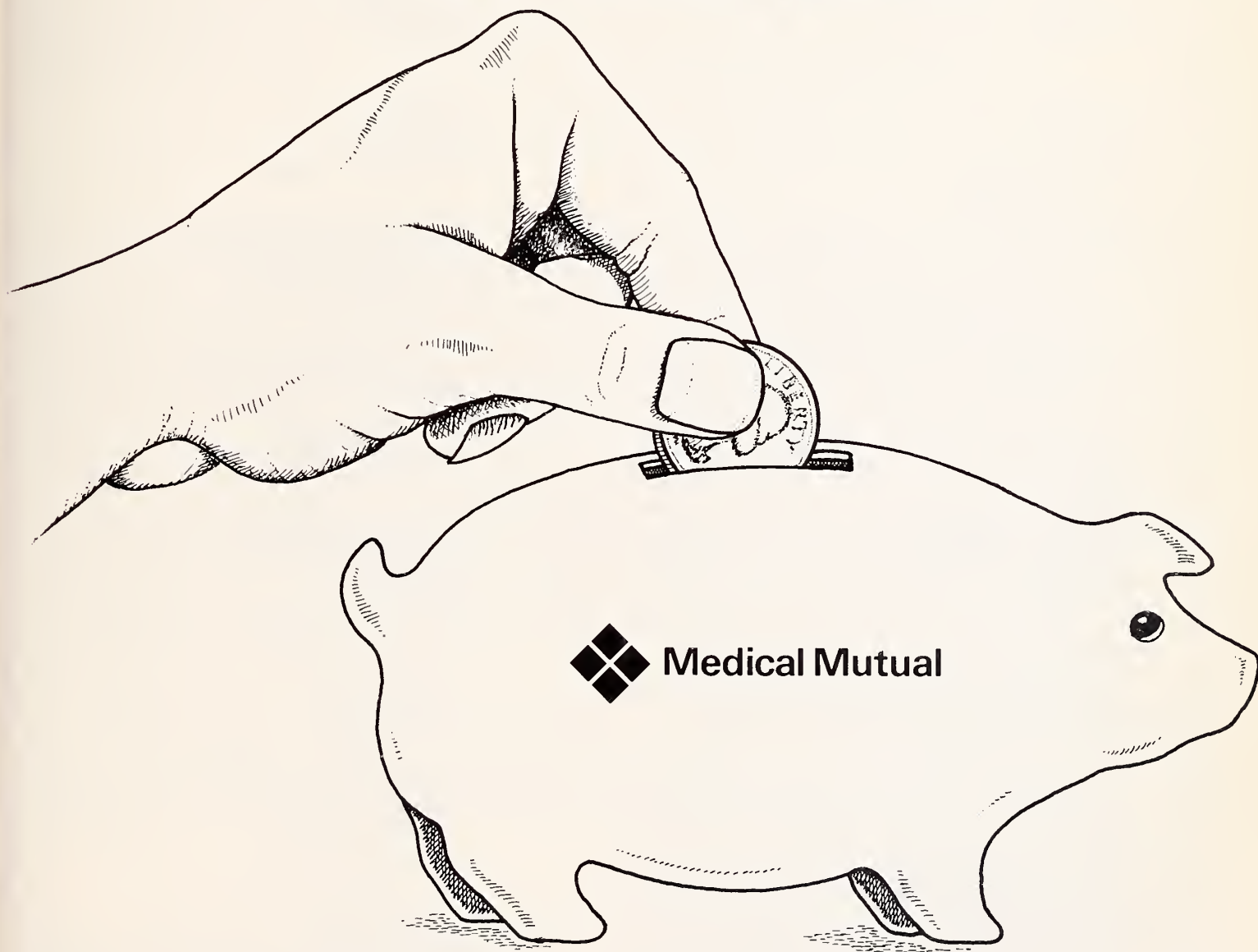
The Gift of Life

When a family member has died, many people are able to make some sense of the loss of their loved one by allowing a Gift of Life, the donation of an organ that may provide another person with a better life.

Eyes are most commonly donated, but other organs, such as kidney, heart, lung, liver and bone are also needed for other patients and for research.

The State of North Carolina requires that the doctor or nurse make this request of the next of kin, in all cases. Please feel free to decide as you wish and accept or decline to donate for any reason that you may have.

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Peggy Hansen, M.D.

neurologist

brain is all,
you said.
all else is ornament,
unwitting handmaid
to this master

the patients come
bringing their scars like frankincense
like sweet myrrh
for the young doctor

I will be good,
they say.
give back my wayward brain
and I will do anything,
be anything—

only put it back
and take instead this gift
this droop, this limp, this stranger
residing here unbidden.

I will take it,
you say,
and enshrine it with lilies
to raise the dead lying here
these many months

silent witnesses
to this trespass. I will
make of their remains
a princely raiment.

brain is all,
you said.
so, this havoc set in train
by its departure
on careless holiday.

psychiatrist

psychotic—
that's a word.
like any other, really

words don't mean anything
when you gotta make it
day to day

sometime you get so angry
or you get so scared
you just gotta turn it
into something else

hey doc wasn't it me
turned your hair white
wasn't it me
made them all laugh—

I just don't know
what you want:
is it a catalogue
of suicides, hallucinations,
childhood torments
is it the sleeping pill,
the loaded gun poised
near that fragile egg
of errant brain

or is it that twist
you put in my guts
with each hand-carved question

It's all very cryptic.
it's all very true.

From the Department of Radiology, Duke University Medical Center, Durham 27710.

The Right to Refuse Medical Treatment

Keith M. Korenchuk, J.D., M.P.H.

Two court decisions in late 1988 addressed the issue of the right to refuse medical treatment, but their results have differed. Neither decision was made in North Carolina, and in fact there have been no decisions made in this state that give physicians guidance in decision making on the right to refuse medical treatment. North Carolina physicians should be aware of relevant decisions that have been made elsewhere and of the development of the law on this issue.

The first case, which was decided in the federal courts, appears to be the first federal court decision to determine that an individual has a constitutional right to decline life-sustaining medical treatment that includes nutrition and hydration. This Rhode Island case, *Gray v. Romeo*, considered the issue in a decision that is consistent with the general rule that patients have the right to make their own decisions concerning what is done or not done to their bodies.

In the second case, *Cruzan v. Harmon*, the Missouri Supreme Court determined that under Missouri law, a guardian could not order cessation of nutrition and hydration for a patient who is in a persistent vegetative state but who is not terminally ill.

Gray v. Romeo: A Constitutional Right to Refuse Treatment

While the decisions send mixed signals concerning the right to refuse treatment, the *Gray* case is clearly the more significant for North Carolina physicians because of its recognition of a constitutional right to refuse treatment. The *Gray* case should provide physicians with some assurance that the

actions that they take with the involvement and input of the patient or patient's representative will be approved if those actions are later reviewed by a court.

In *Gray* the patient was hospitalized as a result of a cerebral hemorrhage and had "no chance" of recovery. The hospital had refused to terminate the life-sustaining treatment that the patient was receiving. As the patient was unable to make any decision concerning her course of treatment, the patient's husband, who was appointed her guardian, commenced an action challenging the refusal of the hospital to terminate the treatment as a violation of the constitutional rights of the patient. The husband and family clearly wished that the patient not be kept alive by provision of nourishment and hydration. The interest of the state, however, was to protect and prolong life by ensuring the patient has continued nourishment and hydration.

The first question considered by the court was whether the right to privacy guaranteed by the Constitution of the United States was broad enough to include the right of a person to refuse medical treatment even if that refusal would result in death. Cases decided by the United States Supreme Court have recognized that a person has a right of self-determination over his or her body, subject to some overriding governmental interests. The right to control medical decisions affecting one's body has long been established in this country. The cases that have examined this issue in other contexts have recognized this as a constitutional right. The court in *Gray*, relying on these earlier decisions, concluded that a person has the constitutional right to control fundamental medical decisions that affect his or her own body.

Having concluded that a constitutional right to refuse treatment exists, the court in *Gray* next considered whether nutrition and hydration through a gastric tube constitute medical treatment that a patient may legally refuse. The court concluded there was analytically no difference between artificial feeding and other, more technologically sophisticated life support measures. The right to refuse treatment, therefore, included the right to have a gastric tube removed.

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The Competing Interests of the State

The court recognized that no constitutional right is absolute, and that the right to refuse treatment must be balanced against other important competing interests, including the preservation of life, the prevention of suicide, the protection of innocent parties, and the integrity of medical ethics.

The preservation of life is the greatest interest of the government. The interest of the state in the preservation of life is greatest when the individual may be subject to abuse because of inability to protect his or her own interest. In *Gray*, the patient's wishes were being represented by a number of individuals who, the court was satisfied, sought to have the wishes of the patient respected.

The prevention of suicide was not an issue in this case, the court concluded, as there was a distinction between deliberately ending life by artificial means and allowing nature to take its course. Refusing nutrition and hydration merely allowed the natural dying process to continue and was, therefore, not viewed as aiding suicide.

The interest of the state in the protection of innocent third parties also did not outweigh the right to refuse treatment, as the family in this case would not be adversely affected by the decision and had in fact supported and advanced the decision. This case differed from one where the patient in question would leave behind unsupported minor children.

Finally, no compromise of medical ethics outweighed the rights of the individual in *Gray*. In fact, allowing the patient or the authorized representative of the patient to make fundamental decisions concerning the patient's body is consistent with ethical principles. The court therefore concluded that the patient's constitutional right to refuse treatment was not outweighed by competing state interests and that the patient's wishes through her guardian should be honored.

Cruzan v. Harmon: The Incompetent but Not Terminally Ill Patient

In *Cruzan v. Harmon* the Missouri Supreme Court considered a single issue: whether a guardian of a patient who is in a persistent vegetative state but not terminally ill may order all nutrition and hydration to be withheld. The court first recognized that courts in other states have with near unanimity found a way to allow persons wishing to die and those who represent them to find a way to achieve that goal. The court stated that the case-made law in these other states recognized the right of an individual to make basic decisions concerning the individual's health and welfare. The doctrine of informed consent, familiar to all physicians, arose through the recognition of the value that society places upon the autonomy of the person. The application of this principle to the refusal of treatment is based upon the logic that if one can consent to treatment, one can also refuse it.

Beginning with the *Quinlan* case in New Jersey in 1976, courts have increasingly recognized that the patient's right to privacy that allows termination of the patient's life often-times outweighs the state's interest in preserving life. This right to privacy is not absolute, however, and the Missouri Supreme Court in *Cruzan* seized upon that concept. The court expressed grave concern as to the applicability of privacy rights to decisions to terminate the provision of food and water to incompetent patients. The court stated, however, that even if it recognized such a right, the decision to withdraw food and water in this particular case could not be supported.

The *Cruzan* court found the interest of the state in life to be based upon two separate concerns: an interest in prolonging the life of the individual patient; and an interest in the sanctity of life itself. The court found that the state's interest in prolonging life was particularly valid in this case as the patient was not terminally ill. The sanctity of life concern rests upon the principle that life is precious and worthy of preservation without regard to its quality.

While many other courts have found that the patient's right to refuse treatment outweighs the state's interest in preserving life, the court in *Cruzan* weighed the factors differently. First, the court considered the views of the patient and the guardian on the issue. The guardian argued that the evidence of the desire of the patient not to prolong her life was clear and that the patient would never again interact meaningfully with her environment. The patient, however, was not terminally ill, and the court rejected the guardian's focus on the prognosis as the basis for permitting the choice to refuse treatment. A diminished quality of life, according to this court, does not support a decision to cause death.

The second argument proposed by the guardian in support of the decision to refuse treatment was that the treatment was invasive and should be withdrawn. According to the *Cruzan* court, however, this argument would require the court to assume that artificial hydration and nutrition were medical treatments. The court stated there was substantial disagreement on this point, concluding that "common sense" tells the court that food and water do not treat an illness, they maintain life. Thus, the issue is not whether continued feeding and hydration of the patient was medical treatment, it was whether feeding and providing liquid is a burden to the patient. The court determined that the care provided by artificial hydration and nutrition was not oppressively burdensome to the patient in the case.

The guardian also argued that the statements of the patient were sufficient evidence of her desire to stop the treatment. The court rejected this argument, stating that the informal expressions made by the patient were only reactions to other medical treatment and were not clear proof of a desire to have feeding withdrawn. Finally, the court rejected any notion that the patient was terminally ill. The patient was alive, and the burdens of treatment, according to the court, were not excessive for her. The right to refuse treatment did not outweigh the vital interest of the state in maintaining life.

Medical Ethics and the Law

The *Gray* and *Cruzan* cases join the rapidly increasing number of legal decisions in this medical-ethical arena. The *Gray* decision is consistent with a number of previous cases recognizing the right of self-determination for a patient. It is the first federal case, however, that recognizes a constitutional right to refuse medical treatment, including nutrition and hydration.

The importance of the *Gray* decision should not be diminished by the Missouri decision in *Cruzan*. *Cruzan* illustrates that the development of the law through the courts is a step-by-step, sometimes uncertain process. While this uncertain process creates practical difficulties for physicians confronted daily with these life-and-death decisions, the clear trend in the law is to recognize the patients' right of autonomy in a wide area, including the removal of nutrition and hydration. □

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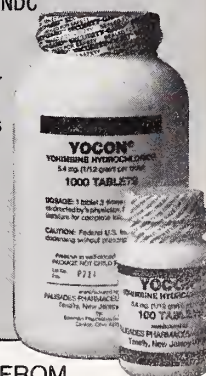
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Physicians' Opinions and Use of Colorectal Cancer Screening Procedures

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We conducted a survey of active family practitioners and internists in North Carolina to determine their opinions and use of screening procedures to detect colorectal cancer. Most physicians believed that the Hemoccult test was useful, reliable and should be promoted. Although most physicians endorsed the use of proctosigmoidoscopy in asymptomatic patients, 77% did not perform the test. The main reasons not to perform the test included its expense and inconvenience as well as lack of training or expertise. More recent medical school graduates and those who thought proctosigmoidoscopy effective were more likely to perform the procedure. Research is needed to understand and remove barriers that prevent physicians from implementing procedures that they believe will be of benefit.

Colorectal cancer is the second leading cause of cancer death in the United States.¹ There is reason to expect that cancers detected early will be associated with prolonged survival, but this has not been proven. Despite imperfect evidence about the value of early detection, the American Cancer Society,² the National Cancer Institute,³ and the International Workgroup on Colorectal Cancer⁴ have recommended screening for colorectal cancer.

Primary care physicians are in a unique position to implement these guidelines for screening. The extent to which they do so is unknown. As part of an effort by the North Carolina Division of the American Cancer Society to promote screening for colorectal cancer, we surveyed North Carolina primary care physicians to learn their opinions and recommended use of colorectal cancer screening procedures.

Methods

The survey was directed at primary care physicians currently in active practice in North Carolina. We obtained the names of all primary care physicians from the North Carolina Board of Medical Examiners. We surveyed all primary care physicians in selected counties (Alamance, Buncombe, Pitt, Wake, Alexander, Catawba and Lincoln). The counties were diverse in size, geography and access to a medical school. A letter explaining the study was sent to the president of each county medical society with the suggestion that the survey be mentioned at a medical society meeting and that physicians be encouraged to participate.

The initial survey was accompanied by a cover letter signed by a physician from the respective county who was active in the local American Cancer Society (ACS) unit. The initial mailing was done on July 25, 1985. A second questionnaire was mailed to nonresponders one month later. Those physicians who had not returned a survey after the second mailing received a phone call from a member of the American Cancer Society staff in their county. They were asked if they intended to return the survey or if they wished to be sent another survey to complete.

Questionnaire items were adapted from several previous studies of physicians' attitudes.^{5,6} We asked physicians how often asymptomatic individuals over age 50 should have digital rectal exams, Hemoccult tests and proctosigmoidoscopy. Their responses were compared to the American Cancer Society guidelines: (1) digital exams yearly; (2) Hemoccult tests yearly; and (3) proctosigmoidoscopy every three to five years.² They were also asked about the use of various cancer screening procedures in their medical practices, their opinions about the effectiveness of cancer screening tests, their educational backgrounds, and the characteristics of patients in their practices.

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Table 1
North Carolina Primary Care Physicians Survey:
Response Rate by County

County	Surveys Mailed	<u>Surveys Returned</u>	
		Number	Percent
Alamance	36	24	66.7
Alexander	7	4	57.1
Buncombe	100	53	53.0
Catawba	46	20	43.5
Lincoln	16	8	50.0
Pitt	46	31	67.4
Wake	68	42	61.8
	319	182	57.0

Surveys were mailed to 334 physicians. Fifteen physicians were excluded because of death, retirement or migration, leaving 319 physicians eligible for analysis. The survey was returned by 116 (36.4%) after the first mailing, 39 (12.2%) after the second mailing, and 27 (8.5%) after the phone call. As shown in table 1, the overall response rate was 57.0% with a range from 43.5% (Catawba County) to 67.4% (Pitt County). The age, race and sex of physicians who did not return surveys was similar to those who did.

Results

The characteristics of physicians who responded are shown in table 2. They were mostly male (91.7%), relatively young (60% under age 50) and primarily office-based (76.9%). The majority of the primary care physicians labeled themselves as family practitioners, followed by internists and general practitioners.

A recent survey of United States physicians commissioned by the American Cancer Society determined the percentage of physicians nationwide who perform cancer screening tests.⁷ Table 3 compares the percentage of North Carolina physicians who perform cancer screening tests to the percentage in the national sample. It is important to note that the wording of the questions was slightly different. We asked North Carolina physicians about the tests that they usually provide to asymptomatic patients over age 50, whereas the national survey asked the US physicians about tests that they ever do. Despite the different phrasing, the results are similar. Over 98% of the NC physicians perform digital exams and stool occult blood tests. Proctoscopy, however, is usually performed by only 32.8% of the NC physicians and mammography by 54.0%. Pap tests are reportedly done by 98.9%.

We asked the physicians to indicate how often asymptomatic, average risk individuals over age 50 should have digital rectal exams, stool occult blood tests, and proctoscopies, and we compared recommendations to ACS guidelines.²

Table 2
North Carolina Primary Care Physicians Survey:
Description of Study Sample

	<u>Number / Percent</u>	
Male	166	91.7
Age		
30-39	73	40.6
40-49	35	19.4
50-59	44	24.4
60-69	22	12.2
70+	6	3.3
Specialty		
Family Practice	103	57.2
Internal Medicine	70	38.9
General Practice	6	3.3
Other	1	0.6
Type of Practice		
Hospital based	24	13.2
Office based (solo)	57	31.3
Office based (group)	83	45.6
Other	18	9.9
County of Residence		
Alamance	24	13.2
Buncombe	53	29.1
Alexander, Lincoln, Catawba	32	17.6
Pitt	31	17.0
Wake	42	23.1

Table 3
Percent of Physicians Who Perform Cancer
Screening Tests: Comparison of North Carolina
to United States Physicians

	<u>North Carolina</u> (n=181)	<u>United States</u> (n=532)
Digital rectal	98.1%	97%
Stool occult blood	93.9	83
Proctoscopic	32.8	43
Mammogram	54.0	45
Breast physical exam	99.4	99
Pap test	98.9	96

North Carolina physicians were asked, "When you do a complete medical examination of an asymptomatic patient over age 50 which of the following do you usually include ... ?"

United States physicians were asked: "When you are examining a patient who has no personal history of cancer and who is asymptomatic do you ever do ... ?"

Physicians who indicated that the frequency of tests should equal or exceed the frequency in the ACS guidelines were considered in agreement. In general, the physicians appeared to agree with the recommendations: 90.1% for digital exams; 88.4% for stool occult blood tests; and 80.2% for proctoscopies. The physicians also believed in the importance of early detection. Thus, 94.4% indicated they believed that early detection made a great deal of difference in length of survival for colon cancer, and 84.4% felt the same was true for rectal cancer.

Reasons not to recommend proctoscopy are shown in table 4. The most frequent reason was expense, followed by inconvenience, lack of training or experience and lack of equipment. Those surveyed did not feel that the exam was dangerous. There were 27% who did not perform this particular screening test and referred the patients elsewhere.

Table 4
Reasons Not to Recommend Proctoscopic Examination: Percent of Physicians Who Indicated Some Influence in Discouraging Use of Proctosigmoidoscopy

Examination too expensive	47.0%
Examination too inconvenient	43.7
Lack of training or experience	30.1
Lack of necessary equipment	26.0
Lack of adequate facilities to do test	22.3
Exam takes too long	21.7
Exam too dangerous	5.1

Physicians were asked to indicate how much influence each item had in discouraging their use of proctosigmoidoscopy.

Table 5
Attitudes about Hemoccult Testing:
"Do you agree or disagree that the Hemoccult test is ..."

	disagree(%)	not sure (%)	agree(%)
Useful as a first line of screening	1.1	2.2	96.7
Useful in uncovering other pathology	7.3	4.4	87.8
Too unreliable to be useful as a screening test for colorectal cancer	82.8	2.8	14.4
Most people will not comply with diet	53.6	12.8	33.5
Instructions too complex for most patients to understand	82.1	6.7	11.2
Most people won't do test at home	78.3	6.7	15.1
Test should not be promoted until there is evidence that screening will decrease mortality	86.4	5.1	8.4

More than one-third had a flexible sigmoidoscope in their office. Of those who did not already use the flexible scope, 55% intended to learn. In order to determine independent predictors of sigmoidoscopy use, stepwise linear regression was performed. The dependent variable was whether physicians recommended sigmoidoscopy. Independent variables included age, year of graduation from medical school, belief that proctosigmoidoscopy was an effective screening test, and the factors listed in table 4. When these multiple factors were examined in a regression model, the four that best predicted recommended use of proctoscopy were: belief in the effectiveness of this screening procedure; limited inconvenience, availability of a sigmoidoscope in the office; and year of graduation from medical school (younger physicians were more likely to use the test).

Attitudes about the Hemoccult test are shown in table 5. The vast majority of physicians agreed that the test was useful as a first line of screening and was useful to uncover other pathology. The physicians did not feel the test was too unreliable to be useful as a screening test for colorectal cancer, that the instructions were too complex for patients to understand, that patients would not comply with the test, or that the test should not be promoted. Opinions about whether subjects would follow the recommended diet during Hemoccult testing were mixed.

We asked several questions about the new at-home tests for fecal occult blood. About half of the physicians would encourage their patients to use these new tests. The tests were considered to be reliable by 45% of the physicians. The remainder had no opinion about the reliability or were uncertain.

Discussion

The purpose of the survey was to determine opinions and recommended use of cancer screening procedures with an emphasis on colorectal cancer screening. North Carolina primary care physicians generally resemble their colleagues in other areas of the United States in terms of their opinions and practices. The physicians believe that early detection of

colon and rectal cancer makes a great deal of difference in survival. They seem to agree with the guidelines established by the ACS, although their beliefs and practices seem to diverge for proctosigmoidoscopy. While 80% agree with the ACS guidelines for proctoscopy, only 34% of the physicians perform this procedure, and 27% refer patients elsewhere to have the test done. Physicians voice a number of concerns about the test, including the expense, inconvenience and lack of training to do the test.

Hemoccult tests, perhaps because they are easier to use, are more widely

applied. Those surveyed generally believed the Hemoccult test to be useful and reliable for early detection of colorectal cancer. They expressed appropriate skepticism about the newer at-home tests which have recently become available and about which there are legitimate performance concerns.

Fecal occult blood tests tend to be generally accepted by U.S. physicians. Cummings et al.⁶ surveyed physicians in New York and found that 95% recommended fecal occult blood tests. Canadian physicians, on the other hand, are not likely to use Hemoccult. Battista found that only 15% of physicians in Quebec tested for occult blood in patients over age 44,⁸ and 20% in New Brunswick.⁹ Testing was not widely done because physicians were uncertain of its effectiveness.

The overall response rate to our survey was 57%, which is quite good for a study of physicians. Physicians are increasingly reluctant to participate in surveys. The response rate to the AMA's Periodic Survey of Physicians declined from 80% in 1966 to 49% in 1977.¹⁰ It is uncertain whether the results of our survey would be different if all physicians had responded. We found that the nonresponders had similar demographic features to those who did respond. Similarly, Beck found that respondents and nonrespondents to a physician survey were similar on most important characteristics. Refusers did not believe the survey merited the expenditure of their time.¹¹ Physicians who do not screen might have been less likely to respond to our survey. Short of examining billing records for responders and nonresponders, we do not have a way to assess this.

We did not validate the responses. Battista validated physician reports by comparing answers to selected questions with billing data.⁸ An estimated 10% who reported using proctosigmoidoscopy were not registered as having billed for the procedure. It is possible that reported frequencies in our survey are overestimates. We extensively pilot-tested the questionnaire, and many of the questions were taken from previous surveys; however, we did not formally assess the reproducibility. Therefore, there is no way to be certain that physicians would give the same answers to the questions on another occasion.

Primary care physicians devote a considerable amount of time and resources to health promotion, and most view health promoting behavior as important to their patients.¹² We found that they generally recommended screening for colorectal cancer although they did not always follow through with these recommendations. Perhaps they were less enthusiastic because of the lack of proven benefit,¹³ although we could not demonstrate this from our data. Improved fecal occult blood tests or more widespread availability of the flexible sigmoidoscope might change physicians' behavior. Until that time we should try to find ways to remove the barriers that prevent physicians from implementing procedures that they claim will be of benefit. □

Acknowledgment

This research was supported in part by a Preventive Oncology Academic Award (KO7 CA00722) from the National Cancer Institute and by the American Cancer Society.

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Pregnancy – *Teratogenic Effects* – *Pregnancy Category C* – Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus and at 50 mg/kg it produced ventricular anomaly, distended abdomen, spinal bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers – Studies conducted in lactating women have shown that <0.1% of the administered oral dose of nizatidine is secreted in human milk in proportion to plasma concentrations. Caution should be exercised when administering nizatidine to a nursing mother.

Pediatric Use – Safety and effectiveness in children have not been established.

Use in Elderly Patients – Ulcer healing rates in elderly patients are similar to those in younger age groups. The incidence rates of adverse events and laboratory test abnormalities are also similar to those seen in other age groups. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of nizatidine included almost 5,000 patients given nizatidine in studies of varying durations. Domestic placebo-controlled trials included over 1,900 patients given nizatidine and over 1,300 given placebo. Among reported adverse events in the domestic placebo-controlled trials, sweating (1% vs 0.2%), urticaria (0.5% vs < 0.01%), and somnolence (2.4% vs 1.3%) were significantly more common in the nizatidine group. A variety of less common events was also reported; it was not possible to determine whether these were caused by nizatidine.

Hepatic – Hepatocellular injury, evidenced by elevated liver enzyme tests (SGOT [AST], SGPT [ALT], or alkaline phosphatase), occurred in some patients and was possibly or probably related to nizatidine. In some cases, there was marked elevation of SGOT, SGPT enzymes (greater than 500 IU/L) and, in a single instance, SGPT was greater than 2,000 IU/L. The overall rate of occurrence of elevated liver enzymes and elevations to three times the upper limit of normal, however, did not significantly differ from the rate of liver enzyme abnormalities in placebo-treated patients. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular – In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS – Rare cases of reversible mental confusion have been reported.

Endocrine – Clinical pharmacology studies and controlled clinical trials showed no evidence of androgenic activity due to Axid. Impotence and decreased libido were reported with equal frequency by patients who received Axid and by those given placebo. Rare reports of gynecomastia occurred.

Hematologic – Fatal thrombocytopenia was reported in a patient who was treated with Axid and another H₂-receptor antagonist. On previous occasions, this patient had experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental – Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity – As with other H₂-receptor antagonists, rare cases of anaphylaxis following administration of nizatidine have been reported. Because cross-sensitivity in this class of compounds has been observed, H₂-receptor antagonists should not be administered to individuals with a history of previous hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other – Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine administration have been reported.

Overdosage: Overdoses of Axid have been reported rarely. The following is provided to serve as a guide should such an overdose be encountered. Signs and Symptoms – There is little clinical experience with overdosage of Axid in humans. Test animals that received large doses of nizatidine have exhibited cholinergic-type effects, including lacrimation, salivation, emesis, miosis, and diarrhea. Single oral doses of 800 mg/kg in dogs and of 1,200 mg/kg in monkeys were not lethal. Intravenous median lethal doses in the rat and mouse were 301 mg/kg and 232 mg/kg, respectively.

Treatment – To obtain up-to-date information about the treatment of overdose, a good resource is your certified regional Poison Control Center. Telephone numbers of certified poison control centers are listed in the Physicians' Desk Reference (PDR). In managing overdosage, consider the possibility of multiple drug overdoses, interaction among drugs, and unusual drug kinetics in your patient.

If overdosage occurs, use of activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance.

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Additional information available to the profession on request.

Doppler Ultrasound Evaluation for Lower Extremity Deep Venous Thrombosis in a Community Hospital

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Vickie H. Dean, R.N., R.V.T., Jamie E. Jester, R.N., R.V.T., and Deborah C. Hall, R.N., R.V.T.

Accurate identification of ileo-femoral-popliteal deep venous thrombosis is a major objective of noninvasive vascular laboratory testing. While there are other less popular noninvasive methods of detecting deep venous thrombosis, Doppler ultrasound remains the most frequently used and best documented noninvasive technique. However, for deep venous obstruction or thrombosis, accurate and reliable Doppler ultrasound results are not as easy to obtain as they are for peripheral arterial disease. Accurate deep venous Doppler examination is primarily dependent on the knowledge, experience and skill of the vascular technologist performing the test. Ninety to 95% accuracy of the diagnosis of deep venous thrombosis by Doppler ultrasound has been reported from university, research-oriented vascular laboratories,^{1,2} but results from community hospital vascular laboratories are largely unknown.³ To determine the accuracy of identification of lower extremity deep venous thrombosis with Doppler ultrasound in a community hospital setting we reviewed the results of 90 patients who had both Doppler ultrasound evaluation and venography of the lower extremity deep venous system.

Methods

Since 1982 we have performed lower extremity venous Doppler ultrasound examinations on approximately 1,600 patients at the vascular laboratory at Wake Medical Center in Raleigh. Of these, 90 patients underwent 97 lower extremity venograms. Both hospitalized patients and outpatients with suspected deep venous thrombosis were referred for testing by their physicians. These included obstetric, postoperative,

and trauma patients. Patients at our hospital who were treated for, or found to have, deep venous thrombosis on the basis of venogram alone without Doppler ultrasound studies were not included in this report.

A five-MHz continuous wave Doppler ultrasound probe was used in all studies. Doppler wave forms were recorded from the common femoral, popliteal and posterior tibial veins. Standard foot, calf and thigh compression and release as well as Valsalva and respiratory variation maneuvers were performed.⁴ Eighty-four of the 90 patients underwent venogram within 48 hours of the Doppler ultrasound examination, and the other six had a venogram two to six days after the ultrasound study. All venograms were performed by a radiologist. The venous Doppler ultrasound examinations were performed by one of four R.N. Vascular Technologists, all of whom were currently or subsequently certified by written examination by the American Registry of Diagnostic Medical Sonographers as specially skilled in vascular technology. When the venogram was performed prior to the Doppler study, the ultrasonographer was kept unaware of the venogram results. Similarly, the radiologist was not aware of the Doppler results when reading the venogram.

All venograms were interpreted by a radiologist and reviewed by one or more of the authors for confirmation. When discrepancies or wording differences between the author's and the radiologist's interpretation of a venogram occurred, a final interpretation was agreed upon by both groups. Venograms were interpreted as normal, calf vein thrombosis, popliteal vein thrombosis, or ileo-femoral vein thrombosis. Calf vein (soleus plexus) thrombosis on venogram was considered normal, since it is common and Doppler ultrasound does not detect these small clots. Venograms showing popliteal vein thrombosis or ileo-femoral vein thrombosis were considered abnormal. Several venograms demonstrated partial obstruction of the ileo-femoral-popliteal venous system and were considered abnormal for the purposes of this study.

Doppler ultrasound studies were interpreted as normal, abnormal or equivocal. Historically, approximately 3% of venous Doppler ultrasound studies performed in our vascular laboratory are reported as equivocal. Most equivocal studies occurred in patients with old recannulated deep venous thrombosis, calf vein (soleus plexus) thrombosis, leg trauma, other types of lower extremity vascular abnormalities, or extrinsic compression of the iliac or femoral veins or venacava. Congestive heart failure may produce an abnormal deep venous Doppler that is easily distinguished from deep venous thrombosis, as can the compression effect of the third trimester of pregnancy. Comparison of Doppler and venogram results were calculated by the method given in table 1. Equivocal ultrasound results were managed in several ways, as presented in the results section.

Results

The results of Doppler and venogram examinations are given in tables 2 and 3. Of the four equivocal ultrasound studies (4.1% of this series) the two with an abnormal venogram had popliteal vein thrombosis (no ileo-femoral thrombosis). One of the two cases with a normal ultrasound study and abnormal venogram had old and new ileo-femoral thrombosis. This patient was on coumadin. Ten patients with a normal Doppler study and a normal venogram had evidence of soleus plexus thrombosis on venogram. The results of comparison of the Doppler ultrasound and venogram studies with the ultrasound equivocal studies considered as normal and as abnormal are given in table 4.

In 1986, 26 patients had both venograms and venous Doppler ultrasound studies and another 346 had only lower extremity venous Doppler ultrasound. Of the latter group, 311 (89.9%) were normal, 27 (7.8%) abnormal, and eight (2.3%) equivocal. Five of the eight equivocal studies had related or other leg problems. Two had old deep venous thrombosis, one had a leg arterial-venous fistula, one had an acute thigh hematoma, and one had severe lower extremity cellulitis. We misdiagnosed a ruptured common femoral artery false aneurysm that obstructed the common femoral vein as deep venous thrombosis in 1987. In 1986 only 7% of patients referred to our vascular laboratory with the possible diagnosis of leg deep venous thrombosis underwent a venogram. Although an occasional patient may have had a venogram performed at another hospital, only 30% of the patients with an abnormal Doppler examination underwent venography in our hospital that year. We are not aware of any patient with a normal venous Doppler ultrasound study at our hospital being subsequently found to have deep venous thrombosis, at another institution. Nor do we know of any patient diagnosed by us using Doppler ultrasound as having deep venous thrombosis subsequently being shown to have a normal leg venogram at another institution.

Table 1
Definitions

	number of abnormal venograms	number of normal venograms
number of abnormal Doppler	A	B
number of normal Doppler	C	D
Sensitivity = A/(A+C)	Positive predictive value = A/(A+B)	
Specificity = D/(B+D)	Negative predictive value = D/(C+D)	
Accuracy = (A+D) / (A+B+C+D)		

Table 2
Doppler ultrasound and venogram results

	normal venogram	abnormal venogram
normal Doppler	47	2
abnormal Doppler	1	43
equivocal Doppler	2	2

Table 3
Results of Doppler ultrasound studies

Sensitivity	probability of an abnormal Doppler exam in a leg with deep venous thrombosis	95.7%
Specificity	probability of a normal Doppler exam in a normal leg	94.0%
Positive predictive value	probability that an abnormal Doppler exam indicates deep venous thrombosis	93.8%
Negative predictive value	probability that a normal Doppler exam indicates a normal leg	95.9%
Overall accuracy		94.8%

Table 4
Effect of equivocal Doppler ultrasound study

	sensitivity	accuracy
By patient (n = 90)		
Only normal and abnormal (n=86)	95.3%	96.5%
Equivocal treated as abnormal	95.6%	94.4%
Equivocal treated as normal	91.1%	94.4%
By leg (n = 97)		
Only normal and abnormal (n=93)	95.6%	96.8%
Equivocal treated as abnormal	95.7%	94.8%
Equivocal treated as normal	91.6%	94.8%

Discussion

The results of this study indicate that 95% accuracy of diagnosis of lower extremity deep venous thrombosis with Doppler ultrasound can be obtained in a community hospital vascular laboratory. The sensitivity, (the ability to detect deep venous thrombosis when it is present) and the specificity (the ability to determine that a normal leg is normal) is also 95% if equivocal Doppler studies are treated as abnormal. These are equal to the best reported results from research-oriented university vascular laboratories.^{1,2} Although there were slightly fewer than 100 patients and limbs available for evaluation, this is a sufficient number to give a reasonably accurate result, and a confidence level on our accuracy, specificity and sensitivity of 91% to 99%.

The results in tables 2, 3 and 4 are based on comparison of venograms and Doppler studies on the same group of patients. The predictive value of Doppler ultrasound testing for lower extremity deep venous thrombosis may be somewhat different when the Doppler test is used in a clinical setting where the prevalence of deep venous thrombosis is significantly lower. For example, our 1986 data indicated that there were 35 abnormal Doppler studies on 346 patients, which indicates a prevalence of disease of 10%. While sensitivity, specificity and overall accuracy are independent of disease prevalence, positive and negative predictive value are not. If the results of table 3 (prevalence of disease $45/93 = 0.48$) are recalculated for a disease prevalence of 20% (0.20), 10% (0.10) and 5% (0.05), the positive predictive value changes from 93.8% to 92.3%, 83.5% and 70.5% respectively. The negative predictive value remains above 97%. This means that when Doppler ultrasound is used to determine the presence of deep venous thrombosis in a population with a low incidence of disease, the finding of an abnormal test carries a lower probability of being correct, whereas a normal test still has a high chance of being correct.

Other techniques of noninvasive detection of deep venous thrombosis include pneumoplethysmography and electrical impedance plethysmography. We used both of these methods as well as Doppler ultrasound early in our experience and found that neither type of plethysmography was as accurate as Doppler ultrasound. Nor did the plethysmographic results in combination with Doppler ultrasound improve the overall accuracy. Doppler ultrasound is clearly the better technique in terms of time required and equipment expense, and, in our hands, accuracy. The plethysmographic methods are more of a "machine test," require minimal technical skill, and may be an acceptable method to use when the experience of the vascular technologist and the number of studies being performed is small.

Our current indications for recommending Doppler ultrasound evaluation for detection of lower extremity deep venous thrombosis are any patient in whom symptoms and/or clinical examination suggest the diagnosis. Clinical diagnosis alone is known to be less than 50% accurate.^{5,6} Repeat lower extremity venous Doppler ultrasound studies are help-

ful in patients at increased risk, those with previous deep venous thrombosis who are undergoing surgical procedures, and those who have a suspicious leg but have had a recent normal Doppler ultrasound study. Venograms are indicated when Doppler ultrasound is equivocal or when there is a high index of clinical suspicion with a normal Doppler ultrasound study. We advise, as do others, heparin therapy in patients with clearly abnormal lower extremity venous Doppler examination without the necessity of venogram confirmation.

New technology may further enhance the ability of Doppler ultrasound to evaluate the venous system. Duplex (Doppler plus B-mode ultrasound) scanning can evaluate both the size and quality of superficial veins being considered for use as bypass grafts. It can also determine the quality and function of the deep venous valves. These advances and the improved accuracy of diagnosis of deep venous thrombosis should allow Doppler ultrasound to replace venography completely.

Summary

The accuracy of Doppler examination for lower extremity deep venous thrombosis in a community hospital vascular laboratory was determined by comparing the Doppler results with venograms of 97 limbs in 90 patients. There were 47 limbs with a normal Doppler study, 46 abnormal (consistent with deep venous thrombosis) and 4 with an equivocal study. The overall accuracy was 95%. Both the sensitivity and specificity were 94% when equivocal studies were considered abnormal. Based on these results, we recommend venography or repeat Doppler examination for patients with a normal Doppler study only if the clinical findings are strongly suggestive of deep venous thrombosis. Patients with an abnormal Doppler examination and clinical findings consistent with deep venous thrombosis can be treated for deep venous thrombosis, with a high degree of confidence in the diagnosis, without venography. Patients with equivocal Doppler examinations are advised to have a venogram. While our results are equal to the best reports from research-oriented university vascular laboratories it should not be assumed that they can be readily reproduced in other settings. The technologists performing these studies should be highly skilled, experienced and preferably board certified. Internal quality control of any testing facility is necessary to assure accurate and reliable Doppler ultrasonic results prior to recommending treatment of deep venous thrombosis based on Doppler ultrasound without venography. □

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Edward C. Halperin, M.D., Book Review Editor

***Obstetrics and Gynecology: The Clinical Core*, by Ralph W. Wynn, M.D. Pontiac, Michigan: Lea and Febiger, 401 pages, \$25.**

Reviewed by Daniel L. Gottsegen, M.D., Greensboro Gynecology Associates, P.A., 200 East Northwood, Suite 216, Greensboro 27401.

Dr. Wynn states, in his preface, that the purpose of his textbook is to present a core curriculum in obstetrics and gynecology for medical students. With this goal in mind, he has succeeded admirably. This is actually the fourth edition of his text and extensive changes have been made in his textbook to reflect the changing character of our specialty. One of the more noteworthy changes is the addition of more sonography with an emphasis on how this important discipline influences both diagnosis and treatment of disease.

All sections of the book are clearly and concisely written with emphasis on rapid understanding and assimilation of material. There is a chapter on anatomy which I found an outstanding review of the material suitable both for the beginner and the specialist looking for a quick review. The book is organized with different size type so that the medical student can concentrate on the basic information he/she needs to master while the more advanced student can find additional information on a particular subject in the same location. Dr. Wynn has organized his material in a very efficient manner both by chapter, subject, and index listings to allow you to rapidly scan the book in search of a particular topic.

Dr. Wynn covers some of the less emphasized issues in the field such as human sexuality, genetics, and newer emerging issues such as human papilloma virus.

This is an excellent textbook; however, the book is not without shortcomings. Although I understand that the aim of the book is not to train clinicians I feel that more clinical material could have been included without interfering with the integrity of the book. There are many sections where clinical areas are very briefly mentioned in review of the material, but the reader comes away without the basic clinical tenets which would allow him to approach the subject

from the standpoint of diagnosis and treatment. Even the beginner needs some of this included not only to broaden education but to increase interest in pursuing the subject in greater detail. I remember many times having a clinical problem stimulate me to further delve into the basic science on which the conclusions were based. The pathology illustrations are excellent but there is a paucity of other types of pictures to demonstrate clinical situations. Flow sheets and other diagrams could also have been used to great advantage. Some of the sections, such as breast, vaginitis, vulva, and premenstrual syndrome are very brief and leave out important clinical data that I feel even a beginning clinician would find helpful in an introduction to gynecology. The book includes very current information but does occasionally refer to dated clinical management. I also feel that a list of references at the end of every chapter would be beneficial for anyone wanting to investigate a specific subject more deeply.

One of the more difficult jobs when introducing a new discipline to a student is to present it in such a fashion so he or she does not feel so overwhelmed that the learning task ahead is unmanageable. Dr. Wynn presents the basic knowledge of obstetrics and gynecology required by medical students in an understandable, reasonably brief form without sacrificing any significant information. All in all I feel that this text is an outstanding addition to any educator's library. Anyone in the position of teaching a core curriculum should give strong consideration to using Dr. Wynn's text or at least recommend it for supplementary reading.

***Human Birth: An Evolutionary Perspective* by Wenda R. Trevathan. New York: Aldine De Gruyter, 1987, 268 pages, \$26.96.**

Reviewed by Hal J. Daniel, III, Professor, Speech, Language and Auditory Pathology, Adjunct Professor, Anthropology and Biology, East Carolina University, Greenville 27858.

Wenda Trevathan, a Greenville native, now Professor of Anthropology at New Mexico State University, has written a scholarly book that has been called a "state of the science" text on human birth and mother-infant bonding. Using fossil evidence, comparative primate biology, and ethological observations of human behavior, Professor Trevathan presents human birth in an evolutionary perspective, more than adequately synthesizing its biology and sociology.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

With clear summaries of the evolution of *Homo sapiens* bipedality (upright walking), encephalization (enlarged brain size), female labor and pain in delivery of neotaneous offspring (human infants are less than fully developed at birth), Trevathan explains how these factors were responsible for an evolutionary selection of "obligate midwifery" in humans. She persuasively argues for natural childbirth in a natural setting. After decades of study of comparative primate birthing, she presents convincing data as to why human females should be assisted by midwives in all but 3% to 6% of the cases, the small percentage of births requiring medical/hospital "backup."

More specifically, Trevathan demonstrates how the change from quadrupedal locomotion to bipedality narrowed the birth canal constraining the dimensions and elasticity of the human female pelvis. This anatomical uniqueness, along with the enlargement of brain and head size, resulted in comparatively longer labor and greater birth pain for human females. Furthermore, human females "present" their offspring differently at birth than do their closest relatives. Human infants are most commonly born facing away from their mother. This fetal emergence pattern in humans inhibits the mother from clearing a respiratory pathway for her infant, inhibits her ability to manipulate the cord should it be wrapped around the neck of the infant and limits her ability to guide the baby's body as it emerges. Rhesus monkeys, baboons, orangutans, gorillas, and chimpanzees most commonly emerge facing their mother who can give birth without the help of others. Not so in humans. In addition, human females give birth to helpless or "neotaneous" offspring which continue "prenatal" development after birth. As would be expected from reading her excellent reviews of these topics, Trevathan, a licensed midwife herself, explains how the birth attendant, i.e., the midwife, has been, and still is, the best individual positioned to "catch" the helpless human infant at birth.

Trevathan provides documentation of behaviors that, if ideally incorporated just after birth, would increase the possibility of mother-infant bonding. Human mothers usually hold their offspring to the left side (independent of the mother's handedness), usually engage in tactile explorations, maintain long periods of eye-to-eye contact, and talk to their infants in high pitch voices. Trevathan feels pro-

longed breast feeding, another important aspect of mother-infant bonding, to be the major bridge from birth to life, woefully suggesting that bridge now to be wobbly and, in some instances, completely broken down.

Interestingly, she points out that prolonged uterine contractions serve to stimulate the fetus and that children born of cesarian section have considerably more respiratory, digestive, bladder and sphincter ailments than do those born vaginally. Trevathan explains how the beta-endorphins (natural opiates) play a major role in pain reduction during delivery. These natural opiates, elevated in the mother, are also very high in the fetus, protecting it from pain and possibly giving it reflective happiness in its first contact with mom.

It's easy to see how oversedation, cesarean sections and even certain hospital policies interfere with the natural process of birth as well as mother-infant bonding. Trevathan makes this point rather poetically, citing documentation rather than prolonged verbiage. Trevathan feels both c-sections and oversedation, in about 95 percent of the cases, are completely unnecessary. And do the babies really need to be taken away from mother to "go and warm up"? Maybe so if mom's on narcotic analgesics.

After reading Trevathan's soon-to-be-classic book, one comprehends how the "politics" of birth has tainted nature's way of doing things. Perhaps the most important message one gets from this book is that it makes proper, straightway reading for certain physicians, medical malpractice lawyers, insurance executives and legislators, many of whom are too mucked up in the process of entrepreneuring to let a natural process guide them in anything. Another provocative message was never really presented as such by the author. I first heard of Trevathan's work a few years ago while attending a conference on language origins at Oxford University. It was elegantly pointed out by a Dutch professor that "Trevathan's book contains the information (on human birth and bonding) underlying the reasons why human females are responsible for the teaching, and possibly the origins, of human language." And finally, it becomes readily apparent from reading Trevathan's superb book that the politics and economics of human birth should be returned to those who know it best, human females. □

Letters to the Editor

Comments on Dr. Davant's editorial

To the Editor:

I read Dr. Charles Davant's article "Health fraud—what's going on in North Carolina?" with much interest. As my personal frustration level rose paragraph by paragraph, I could not help but wonder how Dr. Davant managed to cope with the lack in assistance by governmental authorities in investigating this case of overt fraud.

While Dr. Davant stated, "perhaps I am a bit paranoid," I wish to assure him that we all have good reason to be paranoid at this point in time. Physicians in my community have unsuccessfully attempted to appeal a PRO denial for hospitalization of a patient with wide open mitral regurgitation and hemodynamic instability ("this could have been handled as an outpatient"). Our Medicare carrier denied payment for an EKG for a patient with an acute myocardial infarction, stating that the medical service was unnecessary. The wife of a patient who died after a large myocardial infarction is looking to initiate a lawsuit against her husband's physicians, not because there was any wrongdoing, but simply because "I hear doctors are willing to pay hush-up money to avoid lawsuits, and I am simply broke."

Paranoid? Dr. Davant's article simply provides additional evidence that the inmates are running the asylum.

Peter Goodfield, M.D.
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To Dr. Davant:

I applaud you heartily for your medical ethics article in the North Carolina Medical Journal (Health fraud—what's going on in North Carolina? 1989; 50:341-6). I think that we, as physicians, should vocalize our many concerns regarding healthcare imposters and incompetent physicians as you have done.

I agree completely with you concerning the frustration in trying to deal with the situation, and I became somewhat angry at the SBI and other slow moving agencies in their dealing with this matter.

Thanks again for your courage in writing this article.

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In Memoriam

Seymour Rogers, M.D.

Dr. Seymour Rogers died on May 5, 1989 at Moses Cone Memorial Hospital after a long and difficult illness.

Dr. Rogers was born in New York City in 1910. He graduated from Dartmouth College in 1931 and from New York University Medical School in 1936. He underwent four years of postgraduate training and earned a Master of Science in Surgery at the University of Pennsylvania.

He entered the Army in 1941 and served in Australia, New Guinea, Hawaii, England, and Europe. He was a part of the contingent of Patton's forces that liberated the death camp Matthaussen.

Seymour is survived by Dotty and his three children: Stuart, Linda, and Cathy. He had five grandchildren.

Seymour was a fine athlete and was particularly fond of swimming. Surprisingly in his day, he took an active interest in Judo.

He was a fine dedicated Amateur Radio Operator. He was devoted to Boxer dogs, and over the years he was the owner of four Boxers.

He was a wonderful raconteur and had a fund of fascinating recollections, especially about his far flung war experiences.

Professionally, Seymore was a meticulous craftsman and was zealous and untiring in the care he provided.

First and foremost, he was a gentleman who never had an unkind word for anyone.

—Roy Arkin, M.D.

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- September 7-8**
The Impaired Health Professional
Place: Research Triangle Park
Credit: 1.25 CEU (pending), 12.5 ACPE Contact Hrs. with certificate
Fee: \$140
Info: CME, UNC-CH School of Nursing, CB# 7460, Carrington Hall, Chapel Hill 27599
- September 9**
The Magical Child Matures; A day of interaction with Joseph Chilton Pearce, M.A.
Place: Hickory
Fee: \$45 thru Sept. 1; \$60 at the door
Info: Deborah Hawes, Coordinator, 704/495-7215
- September 12**
13th Annual Cape Fear Medical Symposium - "The Many Faces of Trauma"
Place: Fayetteville
Credit: 9.75 CMEs
Fee: \$30
Info: Marji Bates, Cape Fear Medical Symposium, FAHEC, 1601-B Owen Dr., Fayetteville 28304
- September 12 - 13**
Eleventh Annual Health Law Forum
Place: Greenville
Credit: 7 hrs Category I AMA, .7 CEUs, 6 hrs CLE, 5.75 AAFP
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Info: Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200
- September 15-16**
Assessing and Facilitating Communication Skills: Infants, Toddlers, Families and Professionals
Place: Chapel Hill
Credit: TBA
Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118
- September 29-30**
Practice Management Seminar/Opportunities Fair
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- October 6**
Breast Cancer: Current Research, Practice and Controversy
Place: Chapel Hill
Credit: CME and CEU
Info: Nancy Barnes, Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118
- October 13-14**
Child Abuse Continuing Education Conference
Place: Chapel Hill
Credit: TBA
Info: Office of ME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118
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Place: Chapel Hill
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October 27-29

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Contraindications: VASOTEC® (Enalapril Maleate, MSO) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

Warnings: *Angioedema:* Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

Hypotension: Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Heart failure patients given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in heart failure patients), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

Neutropenia/Agranulocytosis: Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Precautions: *General: Impaired Renal Function:* As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Osmotic reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

Evaluation of patients with hypertension or heart failure should always include assessment of renal function. (See DOSAGE AND ADMINISTRATION.)

Hyperkalemia: Elevated serum potassium (> 5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Information for Patients:

Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

NOTE: As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions:

Hypotension: Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

Agents Causing Renin Release: The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methyl-dopa, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

Lithium: A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. Although a causal relationship has not been established, it is recommended that caution be exercised when lithium is used concomitantly with VASOTEC and serum lithium levels should be monitored frequently.

Pregnancy—Category C: There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not been clearly defined, VASOTEC® (Enalapril Maleate, MSO) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypotension, or the underlying prematurity.

Nursing Mothers: Milk in lactating rats contains radioactivity following administration of ¹⁴C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Adverse Reactions: VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

HYPERTENSION: The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

HEART FAILURE: The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

Cardiovascular: Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension); cardiac arrest; pulmonary embolism and infarction; rhythm disturbances; atrial fibrillation, palpitation.

Digestive: Ileus, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis.

Nervous/Psychiatric: Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

Urogenital: Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

Respiratory: Bronchospasm, rhinorrhea, asthma, upper respiratory infection.

Skin: Herpes zoster, pruritus, alopecia, flushing, photosensitivity.

Other: Vasculitis, muscle cramps, hyperhidrosis, impotence, blurred vision, taste alteration, tinnitus.

A symptom complex has been reported which may include fever, myalgia, and arthralgia, an elevated erythrocyte sedimentation rate may be present. Rash or other dermatologic manifestations may occur. These symptoms have disappeared after discontinuation of therapy.

Angioedema: Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

Clinical Laboratory Test Findings:

Serum Electrolytes: Hyperkalemia (see PRECAUTIONS), hyponatremia.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g% and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

Other (Causal Relationship Unknown): In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported.

Liver Function Tests: Elevations of liver enzymes and/or serum bilirubin have occurred.

Dosage and Administration: *Hypertension:* In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

Dosage Adjustment in Hypertensive Patients with Renal Impairment: The usual dose of enalapril is recommended for patients with a creatinine clearance >30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤30 mL/min (serum creatinine ≥3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

Heart Failure: VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) It is possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

Dosage Adjustment in Heart Failure Patients with Renal Impairment or Hyponatremia: In heart failure patients with hyponatremia (serum sodium <130 mEq/L) or with serum creatinine >1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

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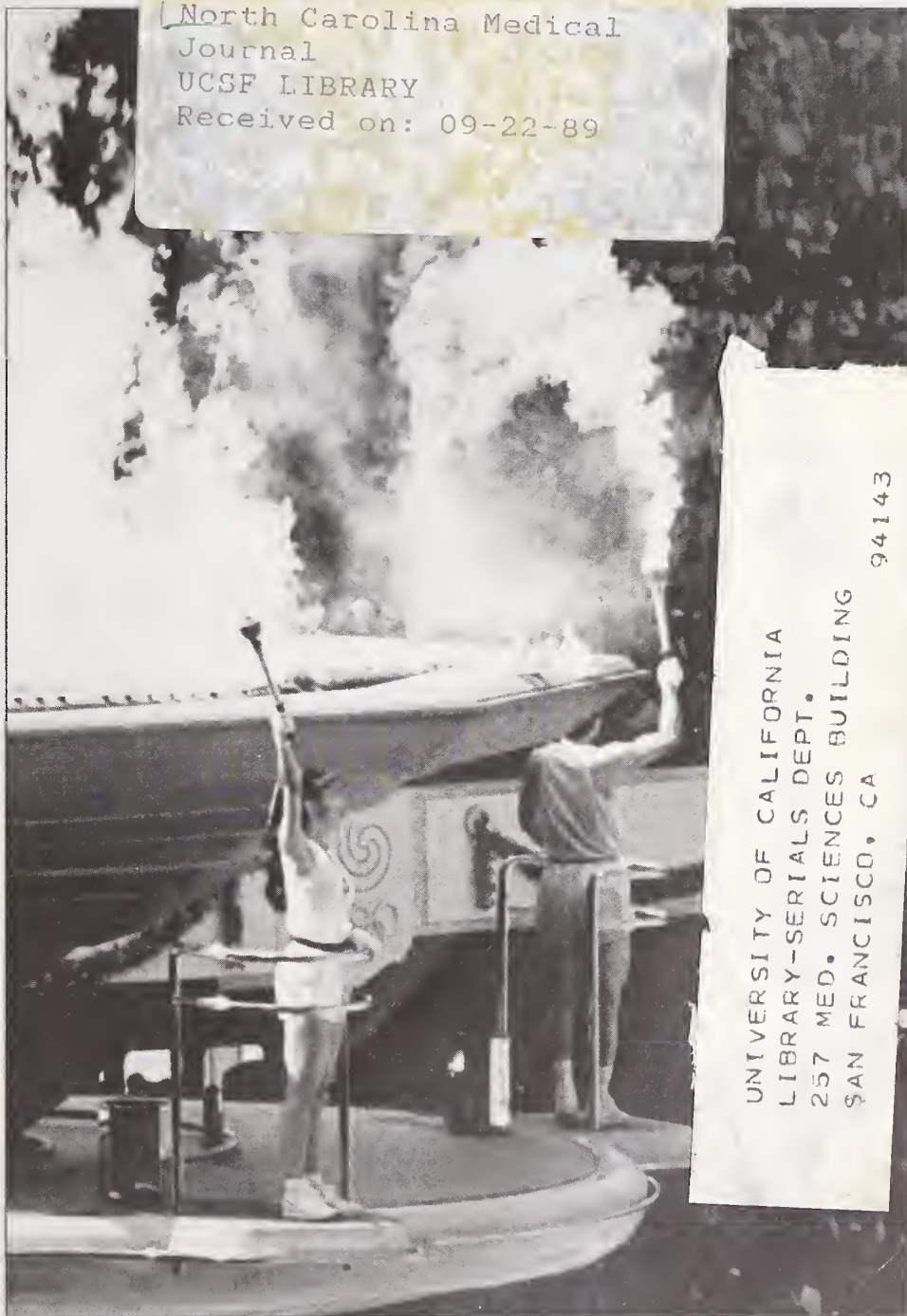
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Notice to: Delegates, Alternate Delegates, Officials of the North Carolina Medical Society, and Presidents and Secretaries of component medical societies.

Sessions of the House of Delegates will convene in the Grand Ballroom, Section C, located in the Vanderbilt Wing of the Grove Park Inn, Asheville, North Carolina, at the following times:

Thursday, November 9, 1989 - 9:00am - Opening Session
Saturday, November 11, 1989 - 10:30am - Second Session

A member of the Credentials Committee will be present at the Meeting Registration Desk in the Grand Ballroom Lobby, Wednesday, November 8, 1989, 3:00pm to 5:00pm, and Thursday, November 9, 1989, 8:00am to 9:00am to certify Delegates. Delegates must bring their Credential Cards for presentation at the Registration Desk. Delegate Badges must be worn to be seated in the House of Delegates.

Reference Committee Hearings

Reference Committee hearings are scheduled to begin Thursday, November 9, 1989, at 2:00pm.

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Sport Psychology at the XXIVth Olympiad: Prologue to the Future?

A.P. Ferrante, Ed.D.

The United States Olympic Committee's (USOC) decision to select two sport psychologists to serve in conjunction with the official medical staff of our 1988 Olympic Team in Seoul, South Korea, is a benchmark in the continuum of comprehensive care of our country's Olympic athletes. Traditionally, when the overall health care of athletes was considered, it was generally assumed that the presence of orthopedic specialists and certified athletic trainers was adequate. They, as a medical team, focused mainly on the prevention, treatment and rehabilitation of physical injuries. However, the recognition of the sport psychology practitioner as a viable member of the health care team within the athletic domain lends significant credence to the compelling notion that athletes are more than just "physical entities" striving for flawless performances. What occurs "above the neck" appears to affect both the quality of those performances and the athletes' personal well-being in general.

As a professional field of endeavor, sport psychology is a recent development in the United States. While a number of articles appeared in the literature in the 1920s, it is generally agreed that as a field of specialization sport psychology was formally organized in 1967 with the publication of the *Sport Psychology Bulletin* of the North American Society for the Psychology of Sport and Physical Activity (NASPSPA). In 1983, the USOC, recognizing the potential contributions of sport psychology, convened a panel of experts to accomplish the following: (1) determine how best to utilize sport psychology professionals for the benefit of our amateur athletes; and (2) develop a specified set of selection criteria and role descriptions by which these professionals might meet and carry out their functions with National Team personnel. As a result of this effort, the USOC

Sports Medicine Council established the USOC Registry for the Psychology of Sport. The registry was intended to serve as a resource guide for National Governing Bodies (NGBs) and coaches who wished to identify proven professionals capable of establishing and conducting sport psychology programs for their particular sport. Further, three major areas of service delivery for sport psychology practitioners were identified—Clinical/Counseling, Education, and Research—as well as a specific set of criteria which must be met prior to listing in the Registry. These criteria, along with service delivery roles by specialization area, are presented in table 1. Until the 1988 Summer Olympic Games, however, no sport psychologist had served as an official member of our nation's Olympic delegation.^{1,2}

As a result of this most recent achievement, it is clear that sport psychology as a behavioral science has reached a stage in its evolution at which it is gaining recognition and respect as a legitimate professional area of specialization. As evidence of this growing stature, the American Psychological Association has formed Division 47—Exercise and Sport Psychology. Both the Association for the Advancement of Applied Sport Psychology (AAASP) and NASPSPA currently possess large and active memberships, with the former group taking the lead in issues that relate to credentialing. Although the genesis of sport psychology remains relatively recent, great strides have been made in the areas of organization, development, education, and training. Unfortunately, however, the functions and potential contributions of the field are still not clearly understood even by many of those who might benefit most from a better understanding of sport psychology's place within sports medicine.

The purpose of this article is to provide information relating to the professional structure, function, and perceived value of sport psychology, and to report on our involvement with the Olympic Team in Seoul. Furthermore, I hope that physicians, nurses, and athletic trainers, as well as athletes, parents, coaches, and appropriate administrators will find this article useful in stimulating greater interest and a better understanding and appreciation for the role and potential contributions of sport psychology.

From the Counseling Center, East Carolina University, Greenville 27858. Dr. Ferrante also serves as consultant with the Sports Medicine Division, and is a licensed psychologist in private practice. He was one of two psychologists selected to serve as the U.S. Olympic Team's first sport psychology staff (1988, Seoul, Korea).

But What Does a Sport Psychologist Do?

For the 1988 Summer Olympic Games, Dr. Shane Murphy and I (both licensed practicing psychologists) were members of the official United States Team delegation. While in Seoul, we provided over 70 formal consultations from September 11 to October 2. A formal consultation was identified as a referral or self-referral requiring a face-to-face session lasting a minimum of 30 minutes. Individual athletes representing at least 13 different sports sought psychological services, with approximately equal distribution of males and females. Consultation services were also provided to members of the USOC staff and various coaches, and a number of more informal consultations were requested by and provided

to staff, athletes, coaches, and parents throughout the Games. Further, as members of the medical team, we participated in daily staffings and also provided an in-service training session for physicians and athletic trainers describing our role and function within the team.

Much of the success we experienced in Seoul had its beginnings in Los Angeles where members of the delegation gathered for team processing. There, in addition to a number of required meetings and briefings, we received our Olympic Team apparel, attended an informative State Department lecture and information session, and had the option of participating in a number of other pre-Olympic ceremonies. We also distributed brochures to athletes and coaches which outlined psychological strategies they could utilize in preparing for many of the stresses they would encounter at the

Table 1
Overview of service delivery roles and credentials for sport psychology practitioners by Specialization Areas³
(Adapted from the United States Olympic Committee Registry for the Psychology of Sport)

Specialization Area	Professional Qualifications	Service Delivery Role
Clinical/counseling	<ul style="list-style-type: none"> - doctoral degree in clinical/counseling psychology or psychiatry from an APA or LCME accredited institution. - APA approved internship/medical equivalent. - must hold current state license/certification or be board eligible. - at least three years of demonstrated post-doctoral experience in the application of psychological principles to sport. - at least 800 contact hours with athletes in one's professional role. 	duties include overall lifestyle management counseling and crisis intervention. Problems typically dealt with include burnout, stress and time management, career termination, anxiety reactions, substance abuse, eating disorders, family related issues, and depression.
Sport Educator	<ul style="list-style-type: none"> - doctoral degree in psychology, sport/exercise science or physical education with a specialization in sport psychology/motor learning. - at least three years of demonstrated post-doctoral experience in the application of psychological principals to sport. - at least 800 contact hours with athletes in one's professional role. 	duties include assisting athletes in developing the psychological skills necessary for optimal participation in sport. Areas include performance enhancement, communication and team building skills, and teaching coaching effectiveness skills.
Research	<ul style="list-style-type: none"> - doctoral degree in psychology, sport/exercise science or physical education with specialization in sport psychology/motor learning. - demonstrated proficiency in systematic data-based research in exercise and sport science, with publication(s) in referred journals as first author. 	duties include conducting research into the basic psychological processes that are involved with athletic performance.

Note: All practitioners listed on the USOC Registry for the Psychology of Sport adhere to both the APA and USOC code of ethics. For further information on the registry write: Shane Murphy, Ph.D., Head, Sport Psychology Department, US Olympic Training Center, 1776 East Boulder Street, Colorado Springs, CO 80909.

APA=American Psychological Association; LCME=Liaison Committee on Medical Education

Olympic Games.⁴ Most importantly, however, we were able to utilize much of our time in Los Angeles to meet with many of our athletes, coaches, USOC staff, and medical team colleagues to extend introductions, inform them of our presence in Seoul, and answer questions. For a number of athletes and coaches, our consultation work began before we ever left the United States.

Once in Seoul, we were properly credentialed and housed in the Olympic Village. We then issued memoranda to members of the U.S. delegation detailing our functions, office location, telephone/beeper numbers, and hours (essentially involving 24-hour-a-day availability). Cognizant of the isolation effects experienced by world-class athletes, we then "hit the streets" of the U.S. enclave in an effort to be visible, helpful, and perhaps most importantly, readily accessible.

Almost immediately, we were scheduling appointments, providing both formal and informal consultations, and receiving referrals from coaches, medical and USOC staff, and athletes. Just as quickly we received a request from NBC for an interview.

As we were about to go on camera for our first network interview the evening before the opening ceremonies, the NBC interviewer leaned over to me and asked: "Psychologists huh? Well tell me, do our athletes really have that many serious problems?" While the answer to his query was a swift and definite "No, not at all," the question itself clearly illustrates the greatest misconception under which many sport psychologists often function. That is to

say, we are frequently viewed as operating within the "illness" model of service delivery, whereby an athlete or coach is seen as possessing a serious emotional or substance abuse problem before a referral is necessary. To be sure, such referrals are indeed appropriate, in terms of both our training and our expertise. But so too are referrals for individuals who desire an objective opinion and "willing ear." We also concern ourselves with making recommendations and assessments concerning psychological/mental training and preparation techniques, performance enhancement strategies, reduction or management of competitive anxiety, the psychological factors surrounding injury rehabilitation, assistance in building team-cohesion, communication skills, goal-setting techniques, and more.

None of us exists in a void. We are affected by, and possess the power to affect (both positively and negatively),

much of what goes on around us. The world of the elite athlete is replete with pressure, expectation, frustration, and near total investment in performances that often last less than a single minute. Athletes are private people who perform and exist within the scrutiny of the public eye. But most of all, these are people first and foremost. They are individuals who possess all the human frailties that touch each of us. In fact, Etzel's recent research with student-athletes from a Division I institution found that in comparison to the general student population, student-athletes as a group experienced significantly higher and more pervasive levels of overall stress.⁵ It was hypothesized that, among other factors, the highly structured life-styles, sense of isolation, and time commitment involved in athletic participation contributed to this finding. I have previously detailed the unique demands and stresses experienced by student-athletes, and what is currently being done at East Carolina University to help.⁶ In addition, Pinkney offers a detailed and readable account of the day-to-day activities of a sport psychologist on a university campus.⁷

Obviously, the pressures of athletic participation are great and the stakes are high, with much hanging in the balance. The sport psychologist as a resource, is a trained professional who is there for athletes, win or lose, to assist their attempts at "gaining an edge" in athletic performance and most certainly in self-understanding. There does seem to be a connection.



Figure 1. Dr. Shane Murphy (left) head of the Sports Psychology Department at the Olympic Training Center, with the author, Dr. A.P. Ferrante, at the Velodrome at the Olympic Games, Seoul, South Korea. Dr. Murphy is a full time employee of the U.S. Olympic Committee.

Real Live People—Real Life Issues

The Olympic Games are as much an emotional adventure as they are a showcase of physical accomplishment. To be sure, the Games represent the ultimate chance for athletic triumph. Just as medical professionals work to maximize the potential for positive and therapeutic results, sport psychologists work to enhance the psychological factors which impact athletic effectiveness within the person-performance continuum.

The following vignettes are a representative sample of the kinds of referrals we received in Seoul. Due to ethical considerations relating to issues of confidentiality, cases are presented in composite form and are described only in terms of the presenting problem with no mention of sport or specific Olympic outcome. Although both males and fe-

males sought consultation services, the following case examples are referenced only in the masculine gender.

- A self-referred athlete was “uneasy” about his room assignment in the Olympic Village. In addition, the athlete expressed concern over his inability to explain or understand these feelings. To compound this concern, the athlete noted that his competition began in several days and he was fearful that his psychological predicament might negatively interfere with his performance.
- An athlete was referred by a coach following a disappointing performance. Beyond the more typical discouragement that often ensues from such situations, the young athlete found himself angrily questioning his self-worth and value to the team. Further, there was significant concern related to the perceived disappointment his family might be experiencing and he was apprehensive regarding the manner in which he would be viewed by teammates and people in his home town. Additionally, he was considering the termination of his sport participation.
- In the midst of the Games, a staff member presented for assistance in dealing with stress. His symptoms included: increased impatience, irritability, difficulty falling asleep, and trouble relaxing.
- A team sport player was referred by a member of the athletic training staff responsible for overseeing rehabilitation of the athlete’s serious shoulder injury. The athletic trainer was concerned about possible emotional ramifications of the injury, including depression, lack of concentration, decreased motivation, and diminished self-confidence.
- An athlete was referred by a member of the medical team. There was no presenting problem, but rather a desire to elaborate on his psychological preparation routine and have the benefit of feedback and possible recommendations.

It is obvious that each person presented with a valid concern that had the potential of affecting the quality of his efforts as an athlete and as a *person*. The athletes’ knowledge of available resources and willingness to access these services represents the primary step in our ability to assist in a timely and responsive manner.

As a parallel to this notion, it is interesting to consider how the overall quality of life could be enhanced if only the myths and negative stereotypes surrounding individual mental health in our communities could be so dispelled. Perhaps the role of psychology in sport will, at some point in time, come to be regarded as a model that influenced such action for all individuals.

Summary and Implications

While the field of sport psychology is relatively young in terms of its development in the United States, it is gaining increased recognition and respect as its contributions become more widely known. Indeed, the USOC’s historical action of appointing two psychologists to the medical staff of the 1988 Olympic Team speaks to the growing status and perceived value of this applied and research field. Unfortunately, however, many sports medicine practitioners remain unclear and uncertain with respect to the role and contributions sport psychology offers both to them and to their patients as a viable resource within the health care continuum of athletics.

Beyond what now exists for sport psychology lie a multitude of other possibilities that have not been explored or even considered by a vast majority of health care professionals. For example, working with an athlete during rehabilitation is not significantly different from caring for the patient recovering from surgery who also faces the possibility of a significantly altered lifestyle. The ability to effectively deal with pain and anticipatory stress is much the same for athletes, surgical patients, and expectant and postpartum mothers. Could professionals involved in the integration of the psychological and physical aspects of performance be helpful with patients who must deal with both the physical and emotional consequences of trauma or loss of function? Is it possible that the human relations skills used in developing a greater degree of team-cohesion in athletes could be put to use in building increased levels of morale, unity and support among members of a surgical or sports medicine team?

Clearly, such issues are preliminary and hypothetical. What is not hypothetical, however, is the exciting challenge of recognizing that many “performance”-oriented interventions for athletes can enhance the broader set of skills used by the individual in life. □

Acknowledgments

The author wishes to thank Dr. James W. Pinkney, Ms. Peggy B. Hussey, and Dr. Jan F. Silverman for their assistance in the preparation of this article.

Suggested Reading

For the reader interested in learning more about sport psychology.

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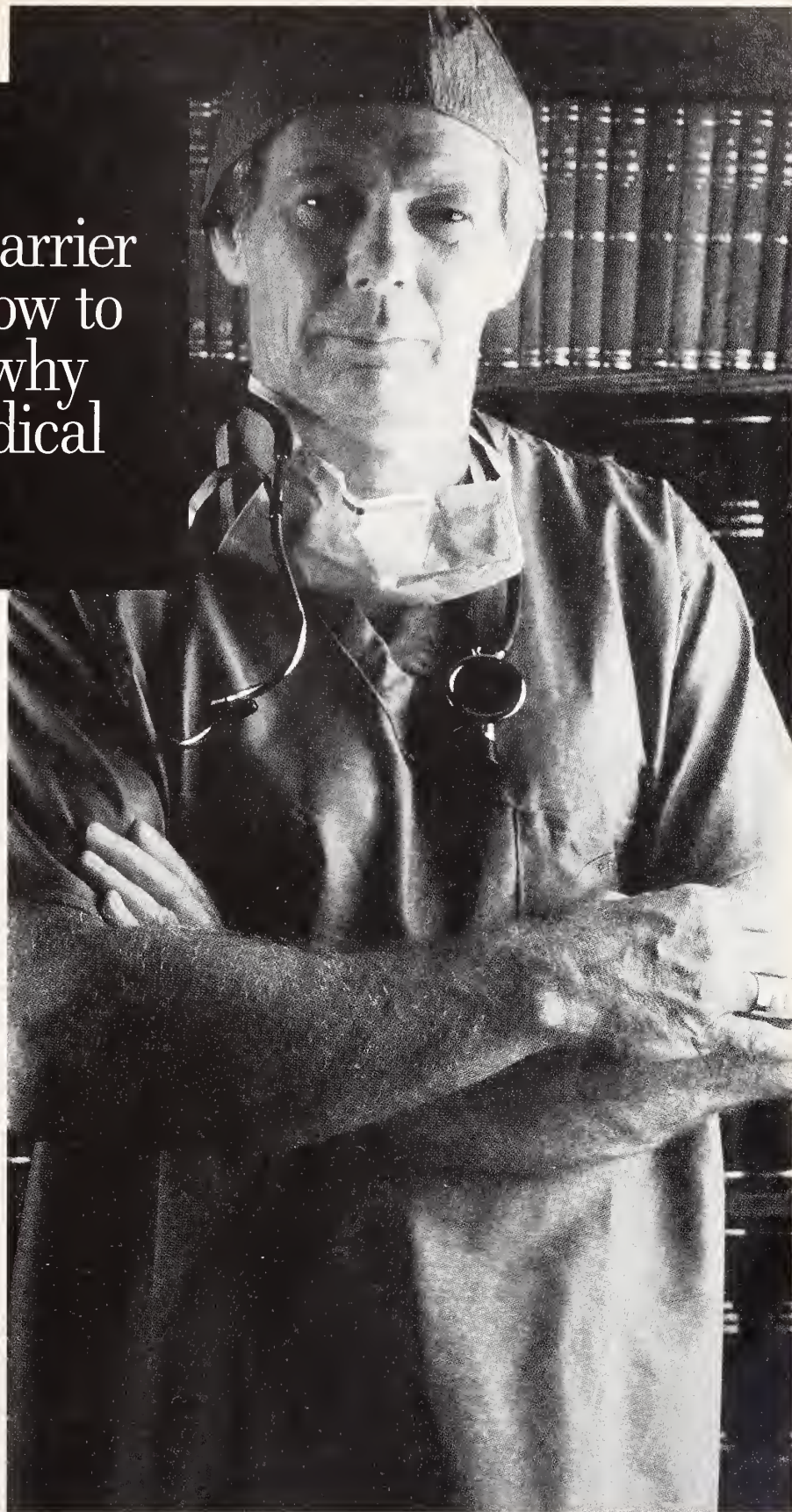
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The Practice of Sport Psychology

The Physician as an Informed Resource

John M. Silva III

A mere ten years ago the academic discipline of sport psychology was known to only a select group of sport scientists and psychologists in North America. Even less prominent was the practice or application of sport psychology with teams or individual athletes at any level of competition. While well developed and integrated into Olympic level sport in East Germany and the Soviet Union, sport psychology has existed quietly in North America since Coleman Griffith's employment as a sport psychologist with the Chicago Cubs Baseball Club in 1938.¹ As the 1990s approach, however, the visibility and practice of sport psychology is accelerating in the United States at a rate few professionals predicted.

Sport psychology has become a household word in the contemporary vernacular of coaches, athletes and the media. Recent media exposure focusing on the applied work of sport psychologists with collegiate, Olympic and professional teams has created an acute interest in the field not only by the consumer but by would-be practitioners as well. This dramatic level of public attention has created significant concern among many long-standing members of the sport psychology community. Their concern is certainly justified since the majority of organizational and administrative energies have been directed toward the teaching and researching of sport psychology rather than the regulation of the practice of sport psychology. Thus, while outstanding graduate specializations exist in sport psychology, most have been geared toward the academic discipline rather than the profession. Remarkably, prior to the founding of the Association for the Advancement of Applied Sport Psychology (AAASP) in 1985 no organized group of professionals existed to provide

structure or guidance to the sport psychology practitioner. This created an environment conducive to professional proliferation and the practice of sport psychology in a variety of sport and exercise settings by individuals unable to discern Coleman Griffith from Andy Griffith!

There is little question that the integrity of sport psychology has been and continues to be challenged by individuals who have no formal training in the field but who claim to be sport psychologists. Sport psychology has been and continues to be a specialized body of knowledge, interdisciplinary in nature, requiring expertise and training in both the sport sciences and the psychological sciences. It is this fundamental recognition of the interdisciplinary nature of sport psychology that determines to a significant degree whether a referral is made to a properly trained specialist or to an individual who knowingly engages in an unsupervised practicum with an unknowing consumer. Since many sport psychology referrals come from a physician, it is important that the physician has the information required to make an informed decision when recommending a sport psychologist.

The Physician as an Informed Resource

The prologue of this paper states what some physicians know, but what many do not. Sport psychology is distinct, and one's training should reflect the nature of this specialization. Many professional teams and community-based consumers request referral for sport psychology services from the team physician and family doctor respectively. This is often a difficult request for a physician to act upon in an informed manner. Where does one find a legitimate sport psychologist? When a referral is made to a licensed psychologist, how does one know whether he or she may be practicing out of their area of competence? Should a call be

From Department of Physical Education, University of North Carolina, Chapel Hill 27599.

placed to a local university's sport science, physical education or psychology department?

The evolution of sport psychology from an academic discipline to an academic discipline with an applied practice is a contemporary phenomenon. There are no licensed sport psychologists, no certified sport psychologists, and only the United States Olympic Committee provides a courtesy registry of sport psychologists. The registry, as it now stands, is largely a courtesy to the registrants, often providing visibility to novice professionals seeking affiliation with Olympic teams.

In an attempt to standardize training, establish minimal competence for entrance, and monitor the ethical practice of its members, AAASP charged a certification committee with the task of creating a document that would certify individuals as legitimate consultants in the field of sport psychology. This document will be voted on by AAASP Fellows in the fall of 1989, and approval will result in a listing of AAASP certified sport psychologists. While certification has been a debated subject for several years, the AAASP document will provide the first tangible model approved by a body of recognized professionals in the specialization of sport psychology.²⁻⁵ The establishment of a certification document is the first step in maintaining the integrity of sport psychology, protecting the consumer, and providing a legitimate referral resource to fellow professionals including physicians.

Certification Criteria

When a practice specialty is offered to the public, formalized guidelines designed to enhance the competence of the practicing professional must be developed and administered. The establishment of such standards is always a controversial issue that has the potential to create professional pressures and divisions. It was not long ago that the American Psychological Association (APA) published its first official position on relations with other professions.⁶ This document indicated that psychologists could conduct psychotherapy only in "genuine collaborations" with physicians. Finally, in 1958, the principle of autonomy removed the medical monitoring restriction, thus allowing psychologists to conduct independent practice.⁷

Sport psychology as a profession has met developmental challenges similar to those that confronted psychology 30 years ago. Who can practice sport psychology? What credentials should this person possess? These are questions that are finally being systematically addressed through the establishment of certification criteria. The AAASP document currently before the Fellows for review and approval includes a role definition, criteria for certification, a grandparenting clause, ethical principles, and procedures for reviewing ethical complaints. Since the document addresses these issues rather at length, paraphrases of the role definition and certification criteria are presented here as an overview of the

proposed certification process. A complete copy of the AAASP certification document is available from the author.

Role Definition

Conferral of the title "Certified Consultant, Association for the Advancement of Applied Sport Psychology" represents recognition by AAASP of attainment of a level of professional knowledge in the subdivision of applied sport psychology. Educational intervention would include: providing information relevant to the role of psychological factors such as cognitive, behavioral, psycho-social and affective responses in sport, exercise and physical activity contexts; the measurement and evaluation of psychological characteristics such as personality, arousal, anxiety, audience effects and coping skills in sport settings; the communication of information to sport and exercise related organizations and groups on topics such as adherence, team cohesion, interpersonal dynamics and program development.

Excluded from the role definition associated with AAASP certification are the following: coaching, diagnosis or treatment of psychopathology, substance abuse disorder, chemical dependencies, eating disorders, obesity, marital and family therapy. These areas are considered separate specializations that require independent training, expertise and certification. The sport psychology certification applies to a limited and definable conceptual area and is designed to reduce the likelihood of an untrained individual practicing outside his or her area of competence.

Specific Criteria

The specific criteria for AAASP certification are very detailed and basically reflect that sport psychology is a unique subdiscipline which requires specialized education and training both in the exercise and sport sciences and in psychology. Briefly, the criteria are: completion of a doctoral degree from an institution of higher education accredited by one of the regional accrediting bodies recognized by the Council of Postsecondary Accreditation; in Canada, an institution of higher education must be recognized as a member in good standing of the Association of University and Colleges of Canada; knowledge of the sport psychology specializations of health psychology intervention/performance enhancement and social psychology of sport; knowledge of physiological and/or kinesiological bases of sport; knowledge of historical and philosophical bases of sport behavior; knowledge of psychopathology; knowledge of basic counseling skills; supervised experience with a qualified person during which the individual receives training in the application of sport psychology principles and techniques; knowledge of skills and techniques within sport and exercise settings;

knowledge and skills in psychometrics and research design; knowledge in non-sport-specific biological, cognitive-affective and social bases of behavior; and knowledge of non-sport-specific individual bases of behavior.

Advancing Sport Psychology

A certification procedure in sport psychology can provide guidance to those currently practicing in the field and to those currently training or contemplating entry into graduate programs in this specialization. The field would be professionally negligent if it did not engage in this process of self-definition. The certification procedure will advance sport psychology by providing structure that should be reflected at institutional levels in program development and training for graduate students. This is the first logical step to the accreditation process for graduate programs in sport psychology.

Certification will not solve all of the problems, issues and concerns that currently surround the practice of sport psychology. It is, however a progressive effort that will protect and enhance the integrity of the field. Given the fact that more and more professionals from various related fields have demonstrated an interest in working with university, Olympic, and professional athletes and sport teams, it is essential that those who wish to affiliate themselves with the field of sport psychology demonstrate that they are indeed specialists in this field. Such a request is a minimal ethical responsibility of the practicing professional and provides a measure of assurance that quality services will be rendered to the consumer of applied sport psychology.

In this regard, the physician can play a significant role in the advancement of applied sport psychology by making informed referrals when a patient inquires about sport psychology services. Until certification procedures are formally established, physicians should exercise caution and base referrals for sport psychology services on the specialized training of the practicing professional, years of experience in the field, membership in professional organizations such as AAASP and Division 47 of the American Psychological Association, or the recommendation of an established, recognized sport psychologist. □

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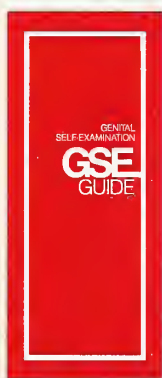


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Malignant Hyperthermia Following Isoflurane Anesthesia in an American Lumbee Indian

Anthony M. Meluch, M.D., Karen S. Sibert, M.D.,
and Edmond C. Bloch, M.B., F.F.A.R.C.S.

To date, only a handful of reported cases have documented the occurrence of malignant hyperthermia (MH) following general anesthesia with isoflurane.¹⁻⁵ All of these cases occurred in the operating room. We present a report of a patient who developed MH in the recovery room two and a half hours after general anesthesia with isoflurane and vecuronium, and who subsequently required general anesthesia for a craniotomy 16 days after his MH episode. Of special interest is the fact that the patient is an American Indian of Lumbee descent, a population group native to North Carolina.

According to orthopedists with extensive experience in North Carolina, members of the Lumbee Indian population group have a significantly higher than normal familial incidence of congenital musculoskeletal anomalies, though this has not been documented (Dr. J.L. Goldner, personal communication). Anesthesiologists, too, have long been aware of this (Dr. K. Sugioka, personal communication). Inheritance⁶ and the association between musculoskeletal anomalies and MH⁷ has long been known. The speculation that the Lumbee Indian population may be at increased risk for developing MH is therefore not surprising, although only one case of MH in a Lumbee Indian child has been reported.⁸

We report this case to draw the attention of physicians in North Carolina to the possible heightened risk of MH occurring in patients of Lumbee Indian descent during or after anesthesia. We would very much like to establish a database to document our suspicions, and we ask our colleagues to please report any cases to us. We would be pleased to share any information arising therefrom with our colleagues.

Case Report

The patient, an 18-year-old 59 kg American Lumbee Indian male had developed signs and symptoms of raised intracranial pressure on the day prior to his admission. He had been seizure-free and on no medication for the previous 18 months.

His hospital record disclosed that he had received general anesthesia with halothane, nitrous oxide and succinylcholine for frontal craniotomy for resection of a pilocytic astrocytoma when he was three months old. This intraoperative course was uneventful, but three hours later in the recovery room, the pulse rate rose to 200 beats/min and the rectal temperature to 39.5°C. Aspirin and IV ampicillin were administered and a cooling blanket was applied with resolution of the tachycardia and fever. No creatinine phosphokinase (CPK) level was recorded.

The patient underwent two subsequent general anesthetics for placement of ventriculoperitoneal shunts at 11 and 18 years of age. On both of these occasions he received succinylcholine for intubation, and anesthesia was maintained with nitrous oxide and narcotics; halogenated agents were not used. Both of these anesthetics were uneventful.

On the present occasion, the patient was scheduled for emergency revision of his ventriculoperitoneal shunt for relief of raised intracranial pressure. Laboratory data, including complete blood count, electrolytes, and coagulation studies were normal. No preoperative CPK was obtained.

Induction and maintenance of anesthesia were managed using thiopental, fentanyl, vecuronium, nitrous oxide, oxygen and isoflurane. At the conclusion of the 150-minute operation, neuromuscular blockade was reversed with atropine and edrophonium, following which spontaneous breathing returned, but the trachea was not extubated since he did not appear fully conscious.

He was taken to the recovery room with an endotracheal tube in place, breathing spontaneously and with baseline

vital signs. Thirty minutes later, he appeared fully conscious and the endotracheal tube was removed. Over the next hour the patient remained alert and appropriately responsive, with vital signs stable except for a sinus tachycardia of 150 beats/min. Two and a half hours after the termination of anesthesia there was sudden onset of muscle rigidity involving the patient's trunk and extremities. This lasted for approximately five minutes and bore no resemblance to a seizure. Thirty minutes later (three hours after the termination of anesthesia) he again developed generalized muscle rigidity, appeared less alert, his heart rate increased to 200 beats/min, his respiratory rate to 40 breaths/min, and his axillary temperature rose to 39.1°C. His skin was dark red in color and very hot to the touch. The clinical diagnosis of malignant hyperthermia was made.

Treatment with intravenous dantrolene was started and intravenous sodium bicarbonate was given while ice packs were placed in the axillae and groin areas, and cold normal saline solution was infused intravenously. Nasogastric lavage with iced saline was performed. Following thiopental and vecuronium, the trachea was reintubated to allow hyperventilation with 100% oxygen. An arterial blood sample drawn after these measures were instituted revealed normal values except for a base deficit 7 mEq/l. At this time, the blood pressure was 150/80 mm Hg, pulse rate 160 beats/min, and rectal temperature 39.4°C. The dose of dantrolene had reached 2 mg/kg, but was continued until the patient's heart rate had decreased to 120 beats/min and the rectal temperature to 36.9°C, at which time dantrolene was discontinued (total dose 5.4 mg/kg). The patient was then transferred to the pediatric intensive care unit intubated and on controlled ventilation.

The resulting metabolic acidosis resolved spontaneously over the next eight hours while the serum potassium and core temperature remained normal. The serum CPK, obtained 10 hours after the hyperthermic episode, was 4,422 IU (normal range 0-130). The urine was negative for myoglobin. The patient received two subsequent doses of intravenous dantrolene 2 mg/kg at six-hour intervals after the initial event. The trachea was extubated on the first postoperative day, and he was transferred to the ward the day after. The family was counselled regarding the implication of the MH diagnosis, and the patient was discharged home four days after surgery.

The patient was readmitted to the pediatric intensive care unit five days later because of altered mental status and seizure activity which responded to treatment with phenytoin. Sixteen days after the MH episode he was brought to the operating room for right frontal craniotomy for removal of recurrent tumor and revision of the ventriculoperitoneal shunt. Intravenous dantrolene 1 mg/kg was given immediately before induction of anesthesia. Standard MH precautions were taken and a narcotic technique avoiding all known MH triggering agents was employed for the anesthesia. The intraoperative course was uneventful throughout the six-hour procedure during which the patient received no further

dantrolene. He was taken to the pediatric intensive care unit with the endotracheal tube in situ and on controlled ventilation. He was given two prophylactic doses of dantrolene (1 mg/kg) at eight-hour intervals, and the endotracheal tube was removed the next morning.

The patient did not recover full consciousness until the morning of the fourth postoperative day. Soon thereafter, he experienced an episode of shaking and tremulousness. He was lucid but his heart rate had increased from 70 to 130 beats/min and his respiratory rate from 28 to 48 breaths/min. Axillary temperature remained stable at 36.3°C, and an arterial blood sample drawn (room air) was normal. Thirty minutes later, his heart rate rose to 160 beats/min, blood pressure to 180/90 mm Hg and rectal temperature to 38.9°C. Treatment with intravenous dantrolene (total 5.4 mg/kg), cold normal saline, cooling blankets, and ice packs was instituted. Rectal temperature reached a peak of 39.4°C, but two hours later it had fallen to 36.8°C. Multiple arterial blood gas measurements during this episode were within normal limits. Three consecutive CPK levels drawn at eight-hour intervals were less than 40 IU. This event was attributed to his intracranial pathology, and he was discharged home without further incident.

Discussion

After retrospective review of all of his hospital records, it appears that this patient had previously undergone anesthesia on three occasions. In each instance succinylcholine had been used, but a halogenated agent had been used only on the first occasion. The second and third anesthetic exposures were uneventful, but it was three hours after the first anesthetic with halothane that an episode occurred which, at the time, was attributed to a central effect of the neurosurgical procedure. However, in retrospect and in the light of subsequent events, it was more likely to have been due to MH.

The second untoward episode, which we describe in this case report, meets the generally accepted clinical criteria for MH, namely tachycardia, fever, tachypnea, hypertension, muscle rigidity, and acidosis. Apparently triggered by exposure to isoflurane, this episode required aggressive treatment. Unfortunately, a CPK level was not obtained immediately after this event, but a blood sample ten hours later revealed CPK levels more than 30 times the upper limit of normal for our laboratory. An increase of more than tenfold has been cited as sufficient to make a diagnosis of MH, even when other clinical criteria are less striking.⁹

The third episode occurred a full four days after a general anesthetic during which all known MH-triggering agents were avoided and prophylactic intravenous dantrolene was administered. This episode also was promptly treated with cooling measures and intravenous dantrolene. However, arterial blood samples did not demonstrate any metabolic acidosis, and CPK levels did not rise. This episode coincided temporally with the patient's first full return to

consciousness following his craniotomy. We speculate that anxiety and pain may have sparked a sudden increase in sympathetic tone sufficient to meet some, though not all, of the clinical criteria of MH. Emotional stress has been known for years to trigger MH crises in pigs, although its role in human MH is more controversial. Physical and emotional stress and psychotropic drugs have been reported to trigger MH reactions in awake subjects.¹⁰ It is impossible to state with certainty whether this patient would have gone on to develop the severe acidosis and elevated CPK levels which characterize true clinical MH if dantrolene therapy had been withheld. However, in view of the patient's previous history, it seemed at the time less hazardous to institute treatment than to withhold it.

In summary, this case report documents the occurrence of MH in the recovery room more than two hours after the administration of isoflurane. The patient had received succinylcholine during three previous anesthetics, but had only developed tachycardia and fever after the first, when halothane was used. When he returned to the operating room 16 days after the acute MH episode described in this report, full MH precautions were taken and no adverse sequelae developed until the fourth postoperative day, when the patient again developed an elevated temperature, tachypnea and tachycardia which resolved after treatment with cooling measures and intravenous dantrolene. □

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Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

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Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

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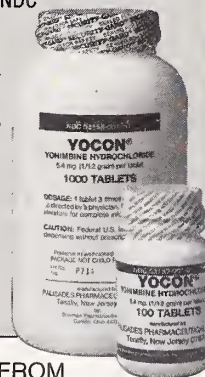
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

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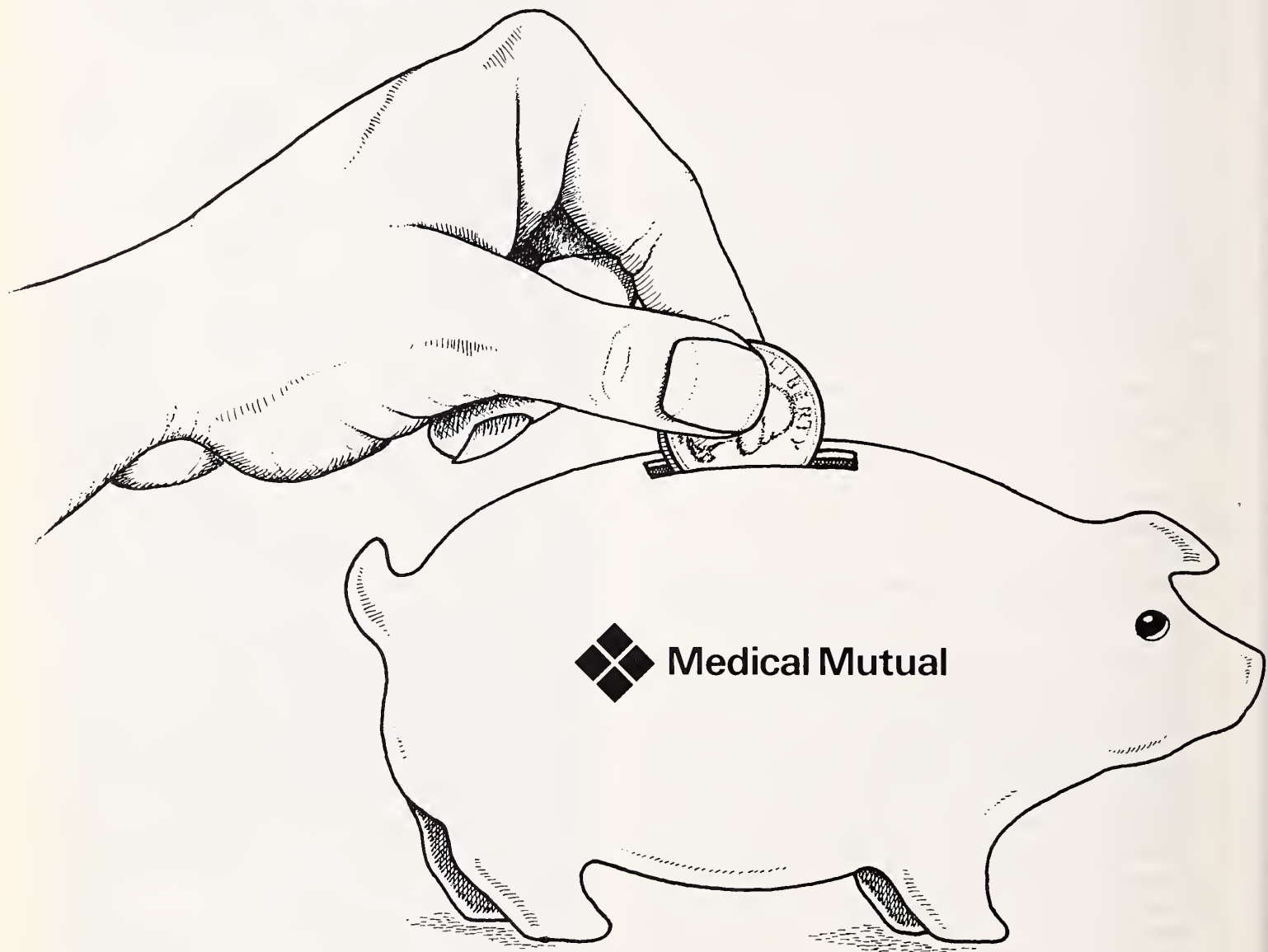
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Bulk Laxative Causing Esophageal Obstruction

Austin Lee, Pharm.D., Harold Silberman, M.D., and Eugene Kovalik, M.D.

J.R., a 71-year-old man, presented to Duke Hospital's emergency department complaining of a "choking" pain in the high epigastrium at the xiphoid, radiating up into his throat. He had eaten dinner and afterwards took his usual dose of Perdiem Fiber* (prescribed three weeks earlier for constipation) as directed: one tablespoonful placed on the tongue and "chased" with a glass of water. He immediately choked and gagged and then noted mid-chest pain with a sensation that "nothing would go down into the stomach." Attempts to relieve his symptoms with water resulted in immediate regurgitation.

Esophageal obstruction was suspected upon evaluation at his local hospital and he was transferred to our emergency room at 3 a.m. for further evaluation/treatment. Past medical history was remarkable for occasional episodes of "food hanging up in my throat," adult onset diabetes, Meniere's syndrome, multiple adenomatous colonic polyps with melanosis coli, and external hemorrhoids. There had been multiple surgical procedures: tonsillectomy x 2 (ages 5 and 30); removal of colonic polyps; cholecystectomy; appendectomy; abdominal and inguinal hernia repair; transurethral resection of the prostate; and removal of Morton's neuroma (right foot). His medications included: Lopid 600 mg po before breakfast and dinner; doxycycline one capsule po qAM; NPH (humulin) insulin 30 units sc qAM and 10 units sc qPM; Valium 5 mg po qHS; Perdiem Fiber one tablespoonful po TID or BID; DSS Plus (docusate and casanthranol) one capsule po BID; enteric-coated aspirin one tablet or one Alka-Seltzer po qAM.

In the emergency room, he complained of "gas" pains in the epigastrium that were not influenced by change in position. He spit his saliva frequently but the physical examination was otherwise normal. A challenge with three swallows of water resulted in regurgitation of the entire volume in one minute.

At barium swallow there was obstruction of the distal esophagus by a large, smooth, ovoid foreign body (figures 1 and 2). At endoscopy, a green gelatinous mass was seen in the distal esophagus just above the lower esophageal sphincter. His glob was manipulated into the stomach, but attempts to break it up were unsuccessful. An approximation of the texture as well as shape was created by mixing his dose of Perdiem Fiber with a small amount of water (figure 3).

Following endoscopy he was discharged and thereafter had an uneventful course. At a three-week followup by phone he could not recall having seen a foreign body in his bowel movements and was eating normally without esophageal or further abdominal symptoms. He reported no additional Perdiem Fiber use.

Discussion

This patient's initial complaint on presentation at his local emergency room was chest pain and inability to swallow. Early evaluation included an electrocardiogram to rule out myocardial ischemia. The history of recent psyllium ingestion was not recognized at first. After transfer to our institution an expanded history dictated that esophageal obstruction had to be ruled out. The single best approach would have been endoscopy since it would have made that diagnosis and permitted a therapeutic intervention to correct obstruction. Because of the nocturnal time of presentation, a barium swallow was performed showing obstruction at the sphincter.

Few therapeutic modalities are possible for patients with this presentation. Glucagon given either intramuscu-

* Formerly Perdiem Plain, psyllium-based bulk-laxative.

larly or intravenously can relax esophageal musculature allowing an obstructing mass to pass into the stomach. In addition to such a therapeutic consideration, management should include intravenous fluids if the patient is dehydrated and protection of the airway if secretions cannot be handled or there is any danger of aspiration.

Bulk-forming laxatives are among the safest and most physiological agents available to promote evacuation of stool. Such laxatives consist of naturally occurring products or semi-synthetic polysaccharides, and/or cellulose derivatives. They dissolve and swell in intestinal fluid to form emollient gels. Such gels facilitate stool passage and stimulate peristalsis creating a laxative action within 12 to 24 hours for most individuals, but up to three days for some.

These formulations are not absorbed and are essentially free of systemic side effects when administered properly. Failure to consume sufficient fluid with a bulk-laxative decreases its efficacy and can result in intestinal or esophageal obstruction. Esophageal obstruction has occurred in patients taking this type of agent in dry form.¹ A case of acute esophageal obstruction secondary to Perdiem was reported by Noble and Grannis.² In addition, it is reported that fecal impaction or intestinal obstruction due to bulk-laxatives can occur. Therefore, their use is not recommended in patients with intestinal ulceration, stenosis, or disabling adhesions.³

Finally, patients with symptoms of so-called cathartic colon, resulting from overuse of stimulant laxatives, can experience bulk-laxative intestinal obstruction.



Figure 1. Frontal view of barium swallow. Note filling defect at level of sphincter.



Figure 2. Lateral view of barium swallow.



Figure 3. Reproduction of the mass by mixing one table-spoonful of a psyllium based bulk-laxative with a small amount of water.

When given as a powder or granule, these compounds should be mixed in fruit juice, soft drinks or water just before ingestion and taken with a full (8 oz.) glass of fluid. Nevertheless, instruction for a lesser amount of fluid is suggested by the cartoon on this patient's can of Perdiem (figure 4). The specific bulk-laxative chosen is unimportant. It is more important that each dose be taken with a full glass of fluid (at least 240 ml or 8 oz.), and that means with each of the one to three daily doses.

Mr. J.R.'s event serves as a reminder that gastro-intestinal complications can occur during bulk laxative therapy when patients have a history of abnormal gastrointestinal function. □

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Figure 4. Illustration for instructions on the can of patient's bulk-laxative.

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Skin: The Bare Facts

A LIFETIME OF SUN

Rev. R.E. Gordon

I have spent most of my life outdoors. I grew up on a farm, where the work was non-stop and most of it in the hot sun. Like all red-heads, I was born with very fair skin and am most prone to suffer extensive damage.

A retired Baptist missionary, I spent 31 years in the Philippine Islands. I loved my work and my wife and I were very happy in that country. Like many Americans who are stationed in the Philippines, we found the people delightful and the country beautiful.

Naturally, the Philippines are very hot and very sunny. The ultraviolet rays that physicians are so careful to warn their patients about are much more severe over there. In the United States, we get ultraviolet rays from around 10:00 am to 3:00 pm. But in the Islands, the ultraviolet rays last all day - from 6:30 am to 7:30 pm - three times as long as at home.

After about four years in the Philippines, around 1959, I noticed two patches of darker, harder skin on my neck and behind my ear that lasted for several weeks. I went to the nearest physician, who was 130 miles away in Manila. She diagnosed my condition as skin cancer. She also said that the Philippine sun would always be harsh on my fair skin.

As time progressed, my condition worsened. The skin cancers continued to reappear, and when we went home on

furlough I saw an American dermatologist. For a while, a period of about eighteen months, I went to the dermatologist in Manila every week. And every visit, she would remove between 10 and 30 skin cancers. I am certain that over the course of my lifetime I have had over 3,000 skin cancers removed from my body.

The doctors told me that the sun damage I was suffering from was not only from our living in the Philippines. The body absorbs ultraviolet rays over a lifetime, and the results

***The sun damage that was causing
me trouble in my adulthood
actually started
when I was a child.***

are revealed slowly, over time. The sun damage that was causing me trouble in my adulthood actually started when I was a child.

The doctors finally told me, around 1963, that my wife and I should leave the Philippines - the sun was just too strong for my fair skin. We didn't feel that we could leave yet, however, believing that our work was too important. By changing my lifestyle, we were able to stay in the Islands for nine more years. I began wearing a hat, using sunscreen, and

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remained indoors during the hottest parts of the day.

Finally, it was time for us to return to the United States. The sun damage that I had been warned about overseas had gotten much worse, and I began looking for a new doctor to treat my skin cancer. I went to see a chemosurgeon named Dr. George Pollock for what I thought would be a routine one-day visit.

It became a 36 day ordeal.

I had no idea how severe my problem was. My skin cancer had become an extreme case, and the next month was one long string of surgeries and recuperations.

He began my treatment by conducting exploratory surgery. For two to three hours a day for seven straight days, he examined the tissues underlying my left ear. Each time he would remove a piece of tissue and test it to see if the cancer

***I am certain that
over the course of my lifetime
I have had over 3,000 skin cancers
removed from my body.***

had spread. By this time, the cancers near my ear had begun to grow deeper into my skull, and had gone down the ear canal and were nearing the brain. In fact, the cancers went from the top of my scalp to my collar bone. They had to be sure to remove all of the cancer to prevent it from spreading even further. In fact, this was my third surgery on this same area. I had one performed while in the Philippines, and another while on furlough.

After the dermatologist completed the exploratory phase of my surgery (which had lasted a total of 19 hours), he turned me over to a plastic surgeon. He had the very difficult job of rebuilding the entire left half of my face and attaching an artificial ear. The dermatologist had literally removed the skin covering about one half of my head, and for a short while in surgery the tissue, including cranial (brain) tissue, was visible to the naked eye.

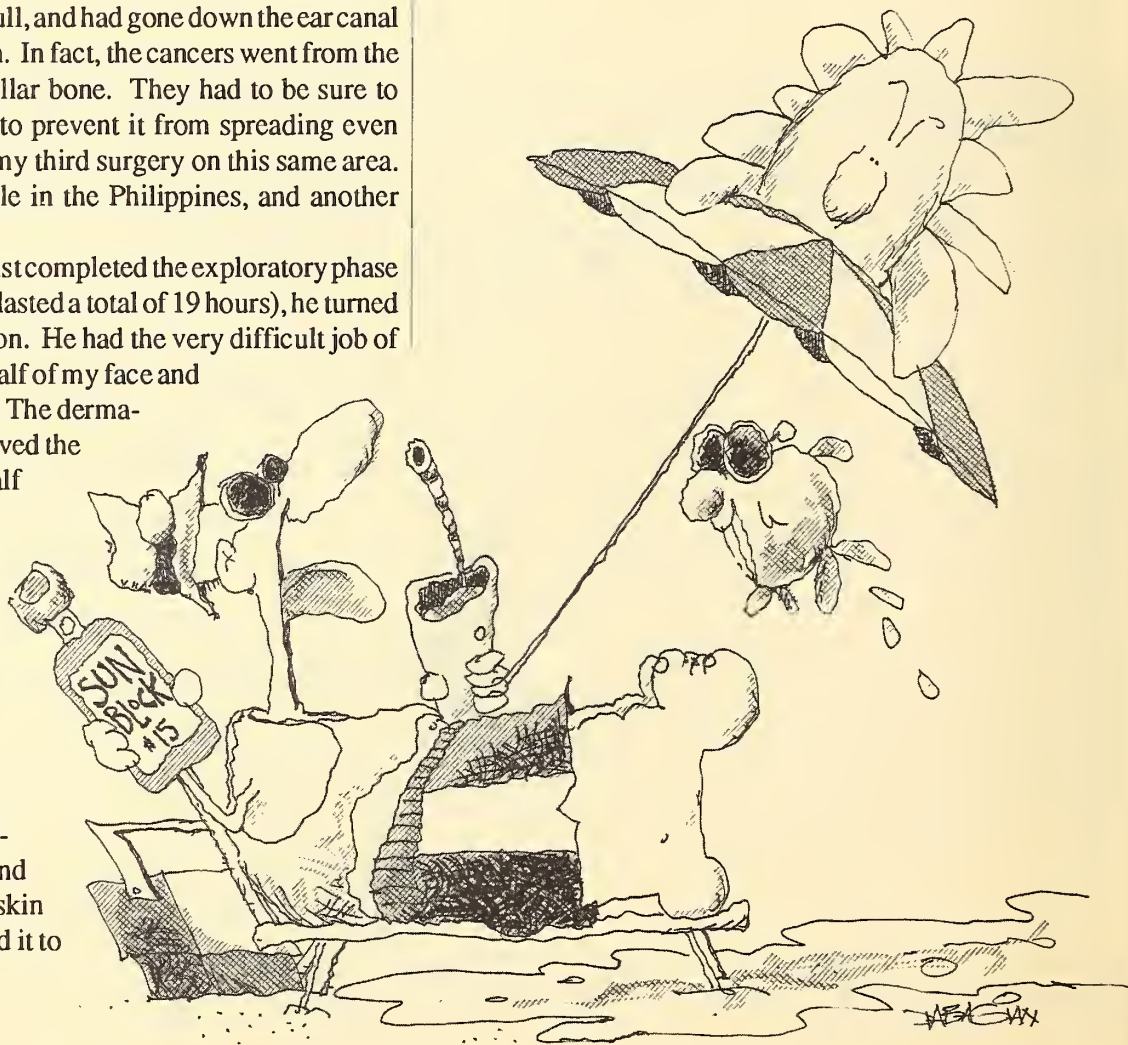
The plastic surgeon then performed what is known as a free flap. He removed the damaged skin from my face, and then removed a flap of skin from my back and attached it to

the remainder of my scalp. Finally, a thinner layer of skin was removed from my leg and attached to my back. It was, at that time, the largest free-flap ever performed at that North Carolina hospital. The operation lasted for nineteen hours straight.

As a part of this extraordinary procedure, the doctors had to reattach the nerves and blood vessels from the grafted parts of skin in order to keep the tissue alive. I did not know it at the time, but the surgeons told my wife that there was about a 50-50 chance that the skin graft would "take." If it had not taken, infection would have set in. He did not tell her what would happen otherwise: I would die.

My recovery took a long time. For almost two years, I could not raise my left arm but slightly. I still wear a hair piece, which helps to shield some of the grafted skin from the sun. But my healing has been so complete that today I can do 130 push-ups - and I'm retired!

Since my surgery, I have only had one skin cancer to appear. A small area on my neck was treated with radiation. Today I live a normal life - working in the yard, gardening, and walking early in the morning. I usually remain indoors during the peak of the ultraviolet rays - from 10:00 am to 3:00 pm. But I have been able to do what a lot of cancer patients have not, which is return to the life they used to live.



Tips for Sun Protection

William M. Hendricks, MD

The following suggestions will help you enjoy yourself in the sun while minimizing the harmful and damaging effects of sunlight on your skin, eyes and immune system:

1 Apply an effective sunscreen generously to your skin. If you do not apply enough sunscreen, you will reduce its sun protection factor. Allow 15 to 30 minutes for the photo-protecting chemicals in the sunscreen to bind to the topmost layer of your skin (the stratum corneum). You may use a sunscreen under your make-up or in place of an aftershave lotion or moisturizing lotion. Try to massage the sunscreen into your skin, covering especially areas that are likely to be exposed to sunlight (such as your face, ears, neck, arms, tops of the hands, legs, trunk, etc.). Please remember to use your sunscreen consistently, or you may get a bad sunburn when you "forget." Ideally, you should try to use a sunscreen whenever you plan to be outside for more than 10 to 15 minutes.

2 Reapply the sunscreen after swimming, bathing, or heavy sweating. Even though "water-resistant" sunscreens are usually still effective after 40 minutes of swimming, while "waterproof" sunscreens last 80 minutes, do not take any chances! Reapply your sunscreen if your skin gets wet, as well as after toweling off or changing clothing.

3 Protect your eyes! Wear sunglasses that block out ultraviolet rays (wrap-around sunglasses are the best). These must fit closely for maximum protection. A broad-brimmed hat can decrease eye exposure to sunlight up to 50%.

4 Try to avoid getting sunscreens in your eyes since they can cause irritation. Some people who are unable to wear chemical sunscreens around their eyes can use physical sunscreens, since they do not usually "sweat" into the eyes. Make-ups containing sunscreens with SPF ratings of 10 or greater or special sunscreen preparations for use around the eyes have also been developed.

5 Beware of the reflection of sunlight off bright surfaces, since you can get a sunburn even in the shade. Use sunscreens when sitting under a beach umbrella or protective awning. White sand can reflect up to 20 to 25% of the sun's rays, while fresh snow, aluminium, or white surfaces may reflect 70 to 85%. White marble, cement, tennis courts, patios, fiberglass boat decks, and Dacron sails also reflect large amounts of ultraviolet light.

6 Sunlight can penetrate water up to several feet, so swimmers and snorkelers can get a sunburn even while swimming in cool water. Also, when the sun is directly overhead, water can act like a mirror, reflecting up to 95% of the sun's rays.

7 Skiers and mountain climbers need to protect themselves from excessive sun exposure even on cold days. For every 1,000 feet of elevation above sea level, there is a 4% increase in ultraviolet light exposure since there is less atmosphere to absorb the sun's rays.

8 Remember that the sun is "hotter" the closer you get to the equator, since the sun's rays strike the earth more directly. Also, the ozone layer over the equator is thinner, and more UVB rays reach the earth's surface. Increased humidity and wind may also exacerbate the damage caused by ultraviolet light.

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9 Try to avoid going out in the sun between the hours of 10:00 a.m. and 2:00 p.m. (11:00 a.m. to 3:00 p.m. daylight savings time). If possible, plan your outdoor activities around these times. You will burn faster in midday sun than in morning or late afternoon sun, since it contains up to four times as many UVB "sunburn" rays. Start a new fashion! Use parasols or umbrellas if you have to be out in the "heat" of the day.

10 Follow the same instructions for sun protection on a cloudy day as you do on a sunny day. Clouds filter out both visible and infrared (heat) rays, while permitting up to 80% of ultraviolet rays to reach the earth's surface. Do not forget that ultraviolet rays are **invisible**! When you get out in the sun it is the bright visible rays and the warm infrared rays that warn you that "burning rays" (especially UVB rays) are also present.

11 When driving a truck or car, keep the driver's window closed, since window glass will block out most of the UVB rays contained in sunlight. Farmers should attach a large umbrella to the back of their tractors or better yet, purchase tractors with cabs.

12 Do not use sun tanning oils, butters, baby oil, mineral oil, or similar preparations as sunscreens, since they actually increase the penetration and damaging effects of ultraviolet rays. Water droplets, in fact, seem to act like tiny magnifying glasses, helping ultraviolet rays penetrate your skin.

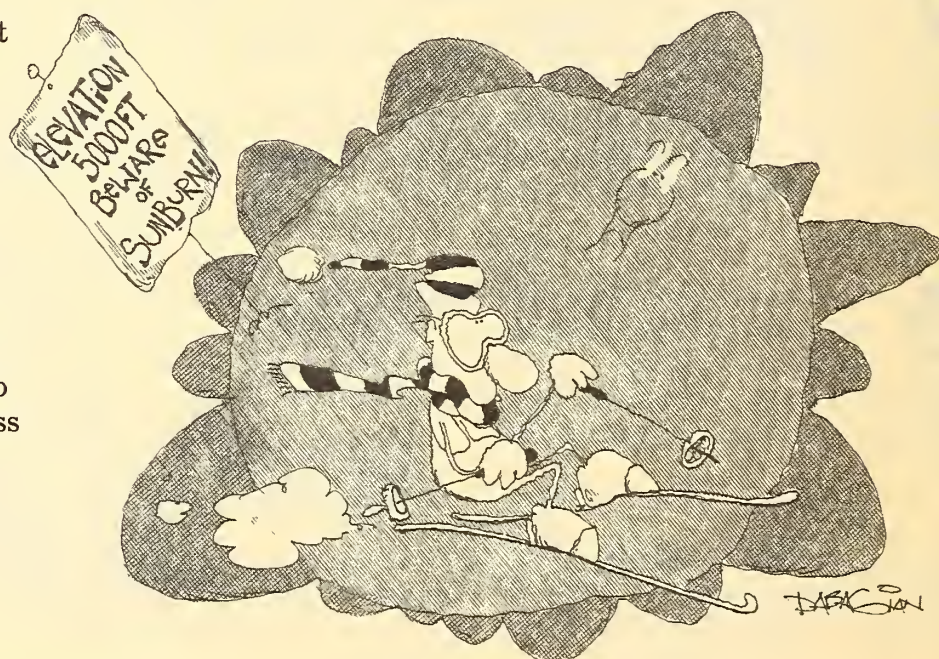
13 Wear tightly-woven, light colored clothing to shield you skin from the sun. This includes wide-brimmed hats to protect your head and face, long sleeved shirts and pants to protect your arms and legs, and gloves to protect your hands. Remember, however, that wet T-shirts, certain bathrobes, and nylon stockings permit about 20 to 30% of ultraviolet rays to pass through them to your skin.

14 Avoid chlorofluorocarbons used in aerosol propellants, since they appear to damage the ozone layer in the earth's atmosphere. It has been estimated that a 1% reduction in the ozone layer will increase the incidence of skin cancer 2 to 4%. If we do not stop polluting our atmosphere, life as we know it on earth may cease to exist.

15 Avoid tanning booths, sunbeds and sunlamps, since they produce ultraviolet rays that damage your skin. Do not get a tan! The equivalent of your entire blood volume (including all of your circulating immune system) passes through your skin two or three times during the time it takes for you to get a little "healthy" color. Remember—every time you get a suntan, damage has been done to your skin. If you must have "tanned" look, try one of the new cosmetic tanning or bronzing creams of gels. Don't expect your chemical "tan", however, to protect you from the sun's rays. It won't! Use sunscreens to protect your "tan", stained skin.

16 Keep infants under 6 months of age out of the sun. Teach your children to protect their skin and eyes from the sun's rays. Remember, sun damage is cumulative over the course of the child's lifetime.

If you do not like using sunscreens, you are not alone! Perhaps in the future effective oral sunscreens will become available, which will free all of us from the inconvenience of topical sunscreens. In the meantime, take advantage of recent medical knowledge and protect your skin from the sun. □



The Value of Health Maintenance Examinations in Women

Arthur C. Christakos, MD

The age-old limit of man's life expectancy, often quoted from the Bible, is three score years and ten. The age of 70 is now considered the *average* lifespan in the United States. In fact, since 1900, the proportion of people beyond the age of 65 years in our society has almost doubled, now being about 10% of the general population and approaching 25% by the turn of the century.

Because of the increase in the older segment of our population, medical care for the aged is becoming more problematic. The internist and the family practitioner bear the bulk of the responsibilities in caring for the elderly, but doctors in all fields of medicine should assume some responsibility in order to assure that the elderly have every opportunity for happy, healthy lives during their latter years.

The physician must keep in mind the overall management of the geriatric patient. Very often the gynecologist or family physician is the only physician who sees these patients on a regular basis. This is probably due to the good habits established by women during their childbearing years when they started getting regular pelvic exams. Because the gynecologist or family physician is the only physician who sees these patients on a regular basis, he or she should be alert to the problems of the elderly and be able to offer assistance or obtain assistance through consultation with the proper doctors and paramedical groups.

Aging and Women's Health

The disturbances and abnormalities of function of the various organ systems in the climacterium (perimenopausal) or postmenopausal woman may or may not be due to hormonal deficiencies, as is usually thought when the older patient complains of various nonspecific symptoms. Among those people who are accustomed to having periodic health examinations, certain conditions are found to be more prevalent than others. In investigation of these complaints, some of the

more common diagnoses that are uncovered are arthritis, hypertension, urinary tract infections, glaucoma, epilepsy, and various psychiatric conditions. Other relatively common conditions uncovered are arteriosclerotic heart disease, hemorrhoids, rectosigmoid polyps, peptic ulcer, inguinal hernias, anxiety states, vasomotor rhinitis, and anemias.

In looking over this list of conditions, it is obvious that all organ systems are involved. Reading between the lines, it is obvious that the most common factor among all these disturbances is inflexibility. There is inflexibility in the vascular system, the skeletal system, the skin, and the mental processes.

Obviously, genetic and other prenatal influences play a role in these conditions. The time of onset, the sequence of events leading to these various conditions, and the intensity of these conditions are modified by postnatal environmental factors. Some students of the aging process feel that aging begins as soon as growth ceases or shortly thereafter. Harry Sobel of the faculty of the School of Public Health, University of California at Los Angeles, says that the onset of aging is congenitally programmed just as are the dentition cycles, sexual maturity, growth and growth cessation, and the onset of the menopause. Biochemical measurements of the aging process are difficult, but from all data available, it seems that there is some acceleration of this process after the age of 40. Shock and his co-workers in 1963 observed an annual decrement in women's stature from age 20 to 90 of 0.14 cm, and x-ray evidence of decrease of bone density at the rate of 0.48% per year.

The Conditions of Aging

Whatever the biochemical changes are that herald the aging process, clinically the aging process is noted by certain conditions manifested in the various organ systems.

The Cardiovascular System

The peak incidence of myocardial infarction among women is noted some 14 to 17 years after the menopause, compared

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to peak incidence of myocardial infarction among men at an age about 20 years younger.

Atherosclerosis in women is definitely associated with increasing age beyond the menopausal years. Young women whose ovaries have been removed have an earlier age peak for myocardial infarction and obvious arteriosclerotic heart disease.

Central Nervous System

There are certain conditions peculiar to the central nervous system which are directly associated with increasing age. For example, there are higher incidences of confusion and anxiety/depression syndromes among the elderly. The peripheral nervous system is also affected more among older women than among the younger. This is evident in the obvious autonomic lability, or "hot flashes," noted during the climacterium.

The central nervous system is adversely affected by atherosclerosis. It is interesting that the cells of the central nervous system are irreplaceable. This is in contrast to cells in other organ systems of the body, which can be regenerated or replaced. The death of a single neuron in the central nervous system results in permanent damage. There is some evidence, however, that there are multiple areas of the brain responsible for the same function, so that the loss of one particular segment may not necessarily cause complete loss of function to the part of the body that is supplied by that segment.

Dr. Ewald Busse of the Duke University Medical Center, who was instrumental in founding a program to study problems of the aged, has reported some rather marked dysrhythmias on electroencephalography from the anterior temporal lobes of the brain in about 20% of "normal" middle-aged persons. There is a steady increase to about 37% as age increases. Doctor Busse informed me recently that this is an area of research worldwide, and the significance of these changes is still unclear.

Deterioration of single neurons when multiplied many times over the years may be responsible for the clinical findings of confusion, hot flashes, a sensation of bugs crawling over one's skin, swallowing problems, excessive perspiration, palpitations and constipation. The age-old condition of chronic brain syndrome is merely an exaggerated form of mild confusion seen in many elderly individuals. The central nervous system also plays a very important role in hearing acuity, visual acuity and equilibrium. The deterioration of the central nervous system would, of course, result in hearing loss, visual loss and dizziness in elderly individuals, causing additional confusion and difficulties with mental processes, locomotion and space orientation.

The Metabolic Functions

Among the metabolic functions of the body there is an apparent gradual decline in all areas with a progressive decrease in the basal metabolic rate. All endocrine functions decline in direct relation to increasing age, reaching a plateau about age 80.

Within the metabolic pathways in the body, there are peculiar-to-the-woman increases in low density lipoproteins and cholesterol at the time of the menopause. This is thought to be related to loss of estrogen. These elements continue to rise, reaching a plateau some years after the menopause. Somewhere after the age of 60 there seems to be a decline in serum cholesterol with a rise in fibrinogen levels (a forerunner of clots). The cholesterol/fibrinogen ratio decreases with age but seems to be markedly higher in patients with cardiovascular disease. Calcium content in the elastic layer of the aorta rises in direct proportion to age. Since there seems to be a relationship between atherosclerosis, serum cholesterol and lipoproteins, the appearance of atherosclerosis should be no surprise in aging when serum cholesterol levels rise. Circulatory blood volume is diminished. These various metabolic problems seem to play roles in all of the organ systems' degenerating processes.

The Musculoskeletal System

With regard to the musculoskeletal system, there is certainly more arthritis and osteoporosis as well as pathologic fractures among the elderly.

There are rather marked changes in the skeletal system as evidenced by the advancing osteoporosis that occurs with advancing years. Demineralization of bone and degenerative processes occurring in joints have always been associated with the aging process. The basic mechanisms for this phenomenon remains to be discovered.

The Skin

With increasing age there is a tendency for the skin to lose its elasticity, an increased propensity for malignant changes, and a decreased ability for wound healing.

The Gastrointestinal Tract

The appearance of rectosigmoid polyps, hemorrhoids, constipation and ulcerative diseases of the gastrointestinal tract are directly related to increasing age.

Pulmonary Function

Pulmonary changes of the elderly are quite evident, with rather sharp increases in chronic fatal respiratory diseases directly related to the aging process. These conditions include asthma, bronchitis, emphysema, pneumoconiosis and bronchiectasis.

Genital Changes

The changes in the genitalia all point to a form of wasting of the vulva (the exterior of the birth canal) giving rise to itching and painful intercourse. These changes also lead to loss of pelvic support, resulting in incontinence of urine and pressure symptoms, among other conditions.

Malignancies

Finally, organ systems show a rather marked increase in malignancy with increasing age.

There are some rather interesting observations that may throw light on the overall process of aging. One of these is an increase in the collagen (supportive protein) levels in various tissues. Of interest is the percentage of collagen in the aged uterus. There is a threefold increase in the postmenopausal uterus compared with the uterus during reproductive years. This increase is evident regardless of the number of pregnancies and deliveries. There also seems to be more collagen in the aging skin as well as in other areas of the body. DNA, the genetic substance of cells, has been found to be more stable when heated in the aging animal. Ordinarily DNA is quite labile when subjected to heat. It is conjectured that the production of proteins may be inhibited because of this change in the physical property of DNA, which may be the reason for changes in the elderly and may very well be the basis for the cause of malignant transformation of cells.

Management of Problems of Aging

Any clinical problem could possibly have been prevented by periodic health examinations beginning at an earlier age. Since many of the problems of the elderly woman may be surgical in nature, it is obvious that the problem of risk should be considered. To a certain extent the surgeons who equate old age with "poor risk" are correct. However, the old age surgical risk is grossly exaggerated. With improvements in preoperative care, anesthesia, therapeutics and surgical techniques, surgical risk is certainly not as bad as was once

thought. The various improvements in the care of the geriatric patient have taken into account such factors as decreased circulatory blood volume, loss of elasticity of the blood vessels, pulmonary scarring, emphysema, the decreased activities of the heart, liver and kidneys, and also the lower level of metabolism in the older patient. It should be pointed out that there is much geriatric surgery that could have been avoided by judicious attention to certain pathological lesions earlier in life; for example, gallstones, recurring and complicated gastric and duodenal ulcers, hernias, injuries at child-birth, and varicosities. Again, a plea for the periodic examination of individuals beginning during their earlier years, when they are in a better physical and emotional condition to withstand specific therapies.

One area of geriatrics that has not been mentioned accounts for as many deaths in people over age 65 as do pneumonia and diabetes: accidents. We as physicians should note the need for visual and auditory improvement and work with ophthalmologists and otologists to offer the elderly the best attainable vision and hearing to prevent avoidable accidents. Another way we can help prevent accidents is to use common sense in prescribing sedatives, tranquilizers, and antihypertensives, in order not to aggravate problems of equilibrium, vision and hearing. Well-illuminated stairwells with handrails, non-skid rugs, well-labeled handles on stoves, and any other physical feature that can be emphasized within the environment of the older person should be made available.

Regardless of the approach used in management of the elderly patient, the foremost prerequisite is sympathetic, sincere and sound attention. In short, recognize that the elderly patient's integrity, independence and self-esteem are important factors in her progress. □

Peggy Hansen, M.D.

cirrhosis

the young man moved in the bed,
abdomen huge as twins
impatient to emerge,
curling veins too blue
under tight skin,
and turned his face to me:
impossible that these eyes
are only twenty-four,
that these plundered cheeks
and I are of an age,
that I should feel so much fear
and screaming impotence

I console myself with the chart,
unseeing measured sheets
with no emotion—
just the graceless facts
detailing the usual decline
of liver, stomach, spleen.
some biographer remarks
“the patient’s family life is poor,”
that he has no friends
save his steadfast pint—

no amount of stillborn words
can match the simple eloquence
and undiluted force
of face, voice, hand.

anorexia

my face in the mirror
conjures the idle bone below,
sweet slow bloom,
yet still I am repelled
by its lewd fleshiness

at dinner the rage boils, a smoke
rising from the groaning plates
more obscene than any dream

my sister sits across the table
wrapped in private spite,
ready to thrust her spear
at any opening:
stop picking at your food—
if you can’t eat all of it,
why eat at all, she says.
her words choke a thing in me
and my fork falls, lifeless.

mother, she doesn’t like my boyfriend
she denounces him
for what she creates in me—
clean your plate, she says but
mother, she hasn’t said I love you
to anyone in fifteen years.

mother can’t you find another way
to shrink me to something
you can embrace

I just want to be something
more than a child.

From the Department of Radiology, Duke University Medical Center, Durham 27710.

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Kinder, Gentler "Corrective Action"

Easing Physician Fears while Simultaneously Improving Effectiveness of "Peer Review"

Richard E. Thompson, M.D.

A professional review action must be taken in the reasonable belief that the action was in the furtherance of quality healthcare ... after a reasonable effort to obtain the facts ... after adequate notice ... in the reasonable belief that the action was warranted by the facts known ...

—P.L. 99-660, Healthcare Quality Improvement Act of 1986.

Retrospective, individualized studies with a negative pre-bias followed by scoldings, threats, and hearings must give way to data-based, objective evaluation of all physicians, followed by timely, productive confrontation, if necessary.

The Medical Executive Committee and Board are asked by the hospital's chief executive, the hospital attorney and/or chairman of a clinical department to take "corrective action" against a medical staff member. "Charges" against the physician are prepared and include:

- Incomplete, illegible patient records
- Lack of progress notes to confirm that the physician has seen hospitalized patients every day
- Too many imaging studies, too many blood tests, keeping patients in the hospital too long, and obtaining too many clinical consultations

Should the Medical Executive Committee and Board now follow the traditional approach of notifying the physician by letter that he or she will not be reappointed to the medical staff and is entitled to a hearing? Or should the Medical Executive Committee and Board ask some ques-

tions? For example: Is this practice pattern totally unique? Why is this particular physician being singled out? Why isn't there equal insistence on action to correct similar patterns in other physicians' practices ... or are those patterns known?

The following two contrasting scenarios may provide insight needed by medical staff leaders, administration, legal counsel and the Board when deciding how to proceed with "corrective action" when a physician is "charged" with "incompetence."

The Scenario in Hospital A

Dr. A, a surgeon not popular with administration and nursing, handled a case poorly, and the result definitely raised questions. Was operative judgment appropriate? Was operative technique good? Was this a "difficult case"—that is, were there patient factors that the surgeon could not be expected to control? Or was this a "horror story"—a term applied in private conversations to a case with many complications due to mistakes made by a treating physician or operating surgeon?

Physicians on the Credentials Committee (some of whom were also competitors of this practitioner) felt that, *in the light of this bad case*, other cases of the physician should be looked at. So, an "investigative committee" was formed.

The investigative committee:

- looking only at this physician's cases
- in the negative pre-biased light
- without talking to Surgeon A

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reported (in a closed-door meeting) that Dr. A had indeed “screwed up.” (A conclusion, note, with which Dr. A might not have disagreed, in the one problem case.)

The Medical Executive Committee reluctantly admitted that they might have an “incompetent physician” in their midst. (In logic, there is a fallacy formally known as the “hasty generalization.”)

Next ...

Whether out of fear or a genuine desire to be fair, it was decided that an outside “objective” opinion should be obtained. The Chief Executive Officer of the hospital was assigned the task of “shopping” for an outside firm to review the same patient records looked at by the investigative committee. Upon contacting this firm’s representative, the CEO asked, “Can you help us with a bad doc?” (Thus inadvertently providing an initial pre-bias to the “objective” outside review group.)

Acquiescing to the study design dictated by the hospital (review of only the “problem” patients’ records), the outside reviewers found several things that they would have done differently, and added to the hospital’s list of “charges” against the physician.

Note that, by now, the hospital’s legal counsel had been (belatedly) advised that this “investigation” was in process. The physicians had insisted on “keeping the attorneys out of it” up to this point.

Also note that neither the “index case” nor other cases being reviewed had yet been discussed with Dr. A. In fact, while medical staff leaders, the Chief Executive Officer and the Board thought they were keeping the “investigation” a secret, Dr. A had “gotten wind” of what was going on, and he and his attorney were primed to respond to whatever communication they would eventually receive.

At a closed-door Medical Executive Committee meeting, with hospital counsel present, the Committee “bit the bullet.” Acting out of a genuine desire to protect patients (believe it or not, that’s often true in these scenarios), the Medical Executive Committee voted to recommend to the Board that the individual be stripped of *all* clinical privileges.

Pursuant to relevant “corrective action” and “hearing and appeal” provisions in medical staff bylaws, the Chief Executive Officer notified Dr. A in writing, return receipt requested.

Dr. A’s response was the response that should normally be expected when an animal feels threatened and cornered by a predator. Dr. A requested a hearing and severed professional relations with his “colleagues.” That was one and a half years ago. In this (composite) situation, the following has occurred:

- A hearing panel upheld the Medical Executive Committee’s recommendation.
- The matter was then forwarded to the Board, for action. The Board felt they could not challenge the opinion of “our doctors,” and of course would not presume to

challenge conclusions of the expert outside reviewers. The Board dutifully carried out the Medical Executive Committee’s wishes by expelling Dr. A from medical staff membership, and forbidding him to use any of the hospital’s services for his patients.

- The physician appealed the Board’s decision.
- The Appeal Panel upheld the recommendation of the Medical Executive Committee, the finding of the Hearing Panel, and the action of the Board.
- Upon receiving this report from the appellate review body, the Board reaffirmed its earlier action.
- The physician filed a lawsuit against the hospital, and against several physician leaders.
- Dr. A continues to practice at the hospital, having won an injunction against a “summary suspension,” because the court reasoned that the slowness of the legal process would necessarily make such a suspension lengthy, and that would be unfair to Dr. A. (By the way, Dr. A has experienced no further problems in his clinical practice.)
- Dr. A’s attorney is attempting to prove: that the good faith provisions of the Healthcare Quality Improvement Act of 1986 have been violated; and that the investigative activity of the medical staff is not at all in the interest of patient protection, but constitutes a personal vendetta against his beleaguered client, simply because he had been critical of administration and nursing at the hospital for several years. Claims being pursued relate to anti-competitive practices, libel and slander, conspiracy, arbitrary and capricious action, with suggestions of fraud and racketeering thrown in.
- The question of whether Dr. A is a generally good practitioner who makes some mistakes, or competent but unusually careless, or truly “incompetent” has been lost in legal arguments over definitions and procedure.

The Contrasting Scenario in Hospital B

Dr. B, a surgeon, not popular with administration or nursing, and an economic competitor of at least one key staff leader, “blew a case.”

The following modern mechanisms are in place in Hospital B and can be used to deal with the problem:

- The “corrective action” provision of medical staff bylaws has been modernized to encourage thoughtful selection of a remedy. Here’s the key provision:

IX.2 Choosing a Remedy

Resolution may be by one, or a combination of several, remedies, which shall be chosen after considering the urgency, recurrence, frequency and/or severity of the specific pattern or incident, as well as considering whether or not an uncooperative attitude is encountered. Ordinarily, the remedy selected shall be one suggested in the User's Guide to Medical Staff Bylaws. (See figure 1.)

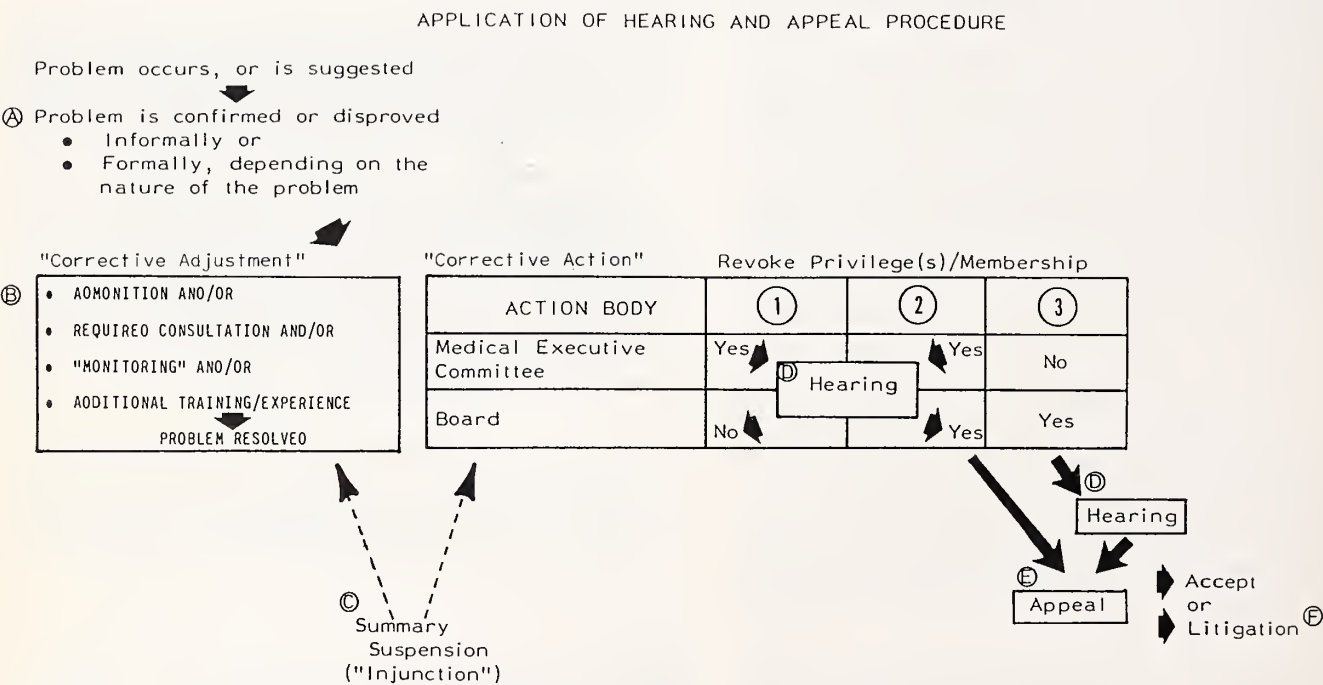
- Implementation of this provision is, as far as possible, helpful and educational rather than punitive, embarrassing or threatening. But provisions for summary suspension and restriction or cancellation of medical staff membership and privileges have been retained, in case a truly incompetent or totally recalcitrant individual is encountered.
- The Hearing and Appeal procedure has been carefully revised, not just to comply with the Healthcare Quality Improvement Act of 1986, but also to:

clearly define "hearing" and "appeal," and to distinguish them from informal meetings between staff leaders and the practitioner presenting a problem; and to

clearly and specifically state that "corrective adjustment" efforts, as in figure 1, should be used whenever possible.

- The Board and Medical Executive Committee welcome "corrective adjustment" efforts by clinical department chairpersons. Staff "followers" have been well oriented so that they understand the authority of the clinical department chair. That is, each staff member is assigned to only one clinical department for the purpose of clarifying which department's chair has authority over the staff member.
- "What happens next?" has also been clarified to staff followers and leaders alike. That is, if the clinical department chair does not obtain a satisfactory response, then the matter must be referred to the Medical Executive Committee and Board for resolution.

Figure 1. Actions Affecting Staff Members



NOTES:

A. The nature of the problem and the conclusion about its significance must be recorded in an objective fashion, such as the following: 1 = Existence of problem disproved; 2 = Reasonable clinical controversy; 3 = Reviewers of the problem displeased; 4 = Reviewers of the problem extremely displeased.

B. These remedies should be acknowledged in the bylaws.

C. Summary suspension is never thought of as an initial solution to a routine problem. Summary suspension is invoked only when the practitioner's immediate action threatens patients or hospital employees.

D. A staff member is ordinarily provided a right to a hearing after the first recommendation to revoke privileges or staff membership, whether it is made by the Medical Executive Committee or by the Board.

E. A staff member is ordinarily provided a right to an appeal of the Board's decision to revoke membership or privileges before it is considered final.

F. If the decision remains adverse to the staff member, the staff member's further recourse is through the courts.

Ordinarily, there is no exception to the rule that a staff member is entitled to only one hearing and one appeal on the same matter.

Documentation

Documentation of the carefully prepared discussion with the physician (the "productive confrontation") was handled by

- a brief entry in departmental minutes
- a carefully phrased letter (figure 4).

One copy of the letter was sent to the physician; one copy was placed in the clinical department correspondence file.

Note that in the handling of this matter there is sufficient documentation *without having to place a letter in the doctor's file*. This alleviates a major objection of physicians to traditional "corrective action" methods.

The Need To Change

Quality physicians and board members alike wish that careful, consistent physician performance, in all cases, would result in disappearance of the need for "corrective action." That is wishing for a perfect world, which simply does not exist.

What Board members, physician leaders, the chief executive and attorneys *can* do is appreciate the *positive* benefits of a modern system, based on:

- valid data;
- objective conclusions, clearly expressed;
- helpful, educational (but *firm*) "productive confrontation." □

Figure 3. Worksheet

(This is not a form to be filed anywhere, or even kept. This might be used as a worksheet by the Quality Assurance Coordinator, Medical Staff Coordinator, Physician Analyst and Department Chairman.)

TO DO:

WHO?

- ☐ Dept. Chairman ☐ Service Chief ☐ Physician Analyst
- ☐ Selected Peer (Specify) _____
- ☐ Other (Specify) _____

WHEN?

HOW?

DOCUMENTATION

In Minutes:

In Department Correspondence File:

To Physician:

On "Decoder Sheet":

At Reappointment Time:

The entries from the decoder sheet are summarized (such as, "Number of 3s = 12")

In Physician's File:

Reportable:

- ☐ Yes ☐ No

(The Decoder Sheet and Reappointment formats can be found in The Hospitalwide Accountability System: Next Steps in Modernizing and Integrating QA, UR/UM, RM, Statistical Analysis and Data-Based Evaluation of Physician Performance.)

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Dear Bill:

Thanks for meeting with Jack and me about your case which required some further discussion.

Since you appear to be aware of the need to practice carefully and since your general track record is good, the matter is considered closed.

The fact that the matter has been noticed will be recorded in our departmental minutes without reference to you or your patient by name.

No details need be placed in your credentials file. The fact that the issue will appear as a "3" on your quality performance summary at reappointment time should cause you no difficulties as long as no further incidents occur.

A copy of this letter is being placed in our departmental correspondence book, access to which is limited to the extent permitted by state and federal law.

Thank you for your generally careful attention to the needs of your hospitalized patients.

Best regards,
Department Chairman

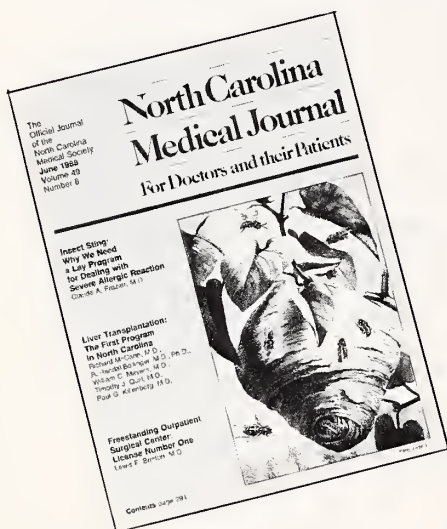
(A REMINDER: Not legal advice and must not be construed as such; no substitute for the specific assistance of legal counsel.)

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ROSALYN P. STERLING-SCOTT, M.D.

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RESIDENCY Boston University School of Medicine (Cardiovascular); Saint Vincent's and St. Claire's Hospitals, New York City (General Surgery)

FELLOWSHIP First Mary A. Fraley Cardiovascular Surgical Research Fellow at the Texas Heart Institute, Houston

OUTSTANDING ACHIEVEMENTS Author of numerous articles, including "Indications for Early Bypass Grafting Following Intracoronary Streptokinase"; author of "The Female Surgeon—Dawn of a New Era," chapter in *A Century of Black Surgeons—The U.S.A. Experience*; Board of Directors, Association of Black Cardiologists; Secretary, Drew Society

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cefaclor

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For respiratory tract infections due to susceptible strains of indicated organisms.

Summary.

Consult the package literature for prescribing information.

Indication: Lower respiratory infections, including pneumonia, caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β -hemolytic streptococci).

Contraindication: Known allergy to cephalosporins

Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in

moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.

- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] and toxic epidermal necrolysis or the above skin manifestations accompanied by arthritis/arthralgia, and frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.

- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.

- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).

- Abnormal urinalysis; elevations in BUN or serum creatinine.

- Positive direct Coombs' test.

- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinistest[®] tablets but not with Tes-Tape[®] (glucose enzymatic test strip, Lilly).

[061088L]

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He Came, He Shaw, He Conquered— Pyrethrin Insecticide Exposure

Ronald B. Mack, M.D.

Over the centuries doctors and the profession of medicine in general have had many detractors, none more articulate than George Bernard Shaw. This Irish man of letters wrote an entire play concerning our profession—*The Doctor's Dilemma*—containing many iconoclastic diatribes against many of the tenets we hold near and dear.

Shaw was not chopped liver: he won the Nobel Prize for literature; he lived from four years prior to the onset of the American Civil War to 1950 and the outbreak of the Korean War. He said "Drugs can only repress symptoms; they cannot eradicate disease. Drugs are a delusion." and "Every fool can get ill; but every fool can't be a good doctor: there are not enough good ones to go round."¹ My personal favorite runs as follows: "The rank and file of doctors are no more scientific than their tailors. Doctoring is an art, not a science ... he has no conception of the scientific method."¹ Shaw would have loved pyrethrins, for he believed the "true remedy for all diseases is Nature's Remedy." He would have been pleased with pyrethrins (which is a collective term signifying insecticidal products obtained from the flowers of the chrysanthemum plant) because they are derived from "natural sources."

The pyrethrins have been in use in this country for 60 years and are contained in most household insecticide sprays and powders.² It is the most widely used household insect spray. The terminology associated with this insecticide class can be very confusing, e.g., *pyrethrins*,³ chemically speaking, are esters of pyrethric and chrysanthemic acids. They are prepared by drying and grinding the flowers to a powder; the resultant powder contains 1% to 3% of the active material. (For those of you who have children who complain of being bored, grinding flowers to powder could be a lucrative cottage industry.) *Pyrethrum*³ is the extract of the chrysanthemum flower, subjected to refinement processes. Pyre-

thrins can mean death to fleas, chiggers, mosquitos (goody!!), houseflies (double goody!!) and lice (ick!!). These agents are not miticidal and should not be used to rid a patient of scabies. *Pyrethroids*³ are synthetic pyrethrins, available since 1950, which have been modified to resist photolysis and heat, thus improving stability in a natural environment. These later agents are usually more effective in killing power, to insects, than the pyrethrins.

There are some other facts you ought to be aware of when dealing with this class of insecticides. Almost all members of this group are in petroleum distillates when formulated for spray application. Kerosene and naphtha are common solvents used in these sprays and present a potential danger of their own, unrelated to the insecticide. Many of the pyrethrin-pyrethroid insecticide formulations contain *piperonyl butoxide*.^{2,4,5} This product has no insect killing power of its own but does act as a synergist that enhances the insecticides by inhibiting the hydrolytic enzymes responsible for their metabolism. The synergist probably increases insecticidal efficiency by two to ten times but should not be considered a big deal in terms of toxicological effects. This product is not very toxic. Acute ingestion of or dermal exposure to piperonyl butoxide is unlikely to produce significant systemic clinical adversities of skin irritation. If you are asking yourself what does all of this have to do with you, try to remember that two of the most popular treatment tools for head lice are in this chemical group: one of them is RID,[®] which is a pyrethrin combined with piperonyl butoxide, and the other is NIX,[®] which contains 1% permethrin, a synthetic pyrethroid. Do not forget the many synthetic pyrethroid insecticides at a store near you, e.g., Ambush, Pounce, Pynamin, Pydrin and Blockade.

As a group, pyrethrin extracts exhibit rapid "knock-down" action in the target insects, leading to death. The "knock down" refers to the paralytic action of this insecticide. (When I first read about this effect I recalled that in the neighborhood where I grew up a quick "knock down" usually referred to an attack on someone's knee-caps with a baseball bat. We are all slaves to our past lives.) Synthetic pyrethroids act by causing delayed closure of sodium chan-

From the Department of Pediatrics, Bowman Gray School of Medicine, Wake Forest University, 300 S. Hawthorne Dr., Winston-Salem 27103.

nels resulting in a slower influx of this ion during the end of depolarization.⁶

As a group, the pyrethrins are not much of a problem in terms of mammalian toxicity; fatalities in humans have not been associated with ingestion of these products in this century. Although absorption in mammals is very rapid, there is rapid metabolic breakdown because of ester cleavage (do you remember her? Every neighborhood had such a girl) and rapid oxidation. The pyrethrins are quickly detoxified in man by hydrolysis of the relatively stable ester linkage to chrysanthemumic acid (I knew that!) and alcohol.^{6,7} The alcohol is oxidized to aldehyde and acid and is then excreted unchanged or conjugated with glucuronide. The synthetic pyrethroids rely on this ester hydrolysis for their principal metabolic karma, with side-chain oxidation the prominent feature of metabolic inactivation.^{6,7} In man there is poor bioavailability and a large first pass extraction by the liver all contributing to its low incidence of toxicity in our species. The estimated lethal dose of pyrethrum is 1 to 2 gm/kg; this has been extracted from animal data.⁸

If these agents have such low toxicity in humans why bother worrying about them? If the truth were known, this class of insecticides can cause trouble in man, primarily by affecting the *pulmonary* and *cutaneous* systems,^{5,7} especially in people with allergenic histories. By far the most common adverse clinical reaction following *inhalation*^{5,7} is rhinitis, i.e., a stuffy, "runny" nose and the sensation of a "scratchy" throat. Sneezing, oral mucosal edema and possibly laryngeal mucosal edema can occur. Lower respiratory tract signs and symptoms can be more uncomfortable for the patient and more worrisome to the doctor and include cough, wheezing, shortness of breath and chest pain. Hypersensitivity pneumonitis is a clinical possibility as well.

The worst scenario following *pyrethrum* inhalation, in sensitive patients, is anaphylaxis consisting of sudden bronchospasm, edema of the oral and laryngeal airways and shock. It might be prudent to get a good history of exposure to this group of insecticides when confronted with a new asthmatic patient, or even recurrent asthma patients who are not responding to ongoing therapy, and of course, patients who have suffered from anaphylaxis without an obvious cause. Massive exposure to these chemicals can produce tremors, excitability, numbness and paralysis.⁷ Approximately half of all persons sensitive to ragweed exhibit cross-reactivity to pyrethrum because ragweed and chrysanthemum are in the same botanical genus.⁷ Apparently hypersensitivity to pyrethroids has not been reported.

Dermatological problems associated with pyrethrins are relatively common, especially in people who are occupationally involved.⁹ There is a characteristic syndrome that presents in patients who complain of a burning, stinging and numbing sensation. Contact dermatitis, limited to mild paresthesias, has resulted in severe erythema and vesications and is probably the most common clinical adversity of pyrethrin exposure. Dermatitis is considerably more common after continued usage, which causes a red, rough, itchy

skin. Synthetic pyrethroids are not considered cutaneous sensitizers. Fortunately, neither the natural nor the synthetic pyrethroids are significantly absorbed through the intact skin.⁶ No systemic toxicity has been observed in rats, rabbits, or nonsensitized people after large and prolonged occupational exposure. The great Joseph Lister, one of the heroes of medical history, exclaimed, after reading Pasteur's paper on "microscopic organisms" and disease: "Just as we may destroy lice on the head of a child who has pediculi, by poisonous applications which will not injure the scalp, so, I believe, we can use poisons on wounds to destroy bacteria without injuring the soft tissues of the patient."¹⁰

Another point in favor of using pyrethroid products instead of lindane (Kwell) in the treatment of head lice relates to safety and efficacy. Lindane (AKA gamma benzene hexachloride) is a chlorinated hydrocarbon insecticide that can be neurotoxic if misused and allegedly can penetrate human skin to a significant degree.^{11,12} Children are more apt to be exposed to lindane than any other organochlorine insecticide either accidentally or therapeutically. Children who use this drug for the treatment of lice or scabies for prolonged periods can present with seizures. In a recent paper comparing pyrethrin products, malathion (Prioderm Lotion) and lindane (Kwell) in the treatment of pediculosis capitis in children, lindane was the slowest acting, 0.5% malathion was the most efficient, followed by the pyrethrins.¹¹ To my knowledge Prioderm is no longer commercially available. So if you were on a desert island, what pediculicide would you use? Probably the pyrethrins.

There is a recent report in the literature of a case of pyrethrin poisoning from an over-the-counter flea and tick insecticide.⁷ It produced a self-limited syndrome of cutaneous paresthesias, repetitive vomiting and diarrhea, upper respiratory tract irritation, dyspnea with productive cough and uneventful recovery. This episode followed inhalation and cutaneous exposure to a "flea-killer" spray by a 24-year-old man.

It is reasonable to ask at this point about the role of the doctor in managing a patient who gets too much of pyrethrins/pyrethroids. There are no antidotes for this type of intoxication. Treatment is supportive. If the product was accidentally ingested and you see the patient less than 30 minutes after ingestion, obtunded or in an anaphylactic state, you could induce emesis, administer activated charcoal and then a saline cathartic or sorbitol. Basic life support is the main event in this entity, and acute anaphylaxis requires your immediate and undivided attention. Treat, in the usual fashion for this life-threatening emergency, with intravenous epinephrine followed by steroids. If bronchospasm is present, bronchodilators should be given. Milder cases with the chief complaint of rhinitis can be managed with oral antihistamines and/or decongestants. Consensus opinion favors intravenous diazepam for seizures or phenytoin if this method fails. Topical vitamin E has been used successfully for the paresthesias that can occur following dermal exposure to synthetic pyrethroids.⁶ Emergency treatment of the skin

requires washing the exposed skin at least twice with soap and water. In case of ingestion, hydrocarbon pneumonia is a possibility, as hydrocarbons are the most common solvent used with this class of pesticides. These compounds are very lipophilic, so do not administer milk or cream or substances containing animal fat in patients who ingest these chemicals.

George Bernard Shaw had the gift of putting together words in an engaging memorable manner. Here are some examples, words to live by: "The seven deadly sins—food, clothing, firing, rent, taxes, respectability and children. Nothing can lift these seven millstones from man's neck but money; and the spirit cannot soar until the millstones are lifted."¹³ And who could forget: "Never resist temptation; prove all things: hold fast that which is good."¹³ My personal favorite saying of his is: "There are two tragedies in life. One is not to get your heart's desire. The other is to get it."¹³ □

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Edward C. Halperin, M.D., Book Review Editor

Disease and Distinctiveness in the American South, Todd L. Savitt and James Harvey Young, eds. Knoxville: University of Tennessee Press, 1988.

Reviewed by Sally G. McMillen, Department of History, Davidson College, Davidson, NC 28306.

The American South has long been recognized as the most distinctive region in the nation. C. Vann Woodward, noted southern historian, has defended the South's unique history, and W.J. Cash's classic study of the southern mind upholds the perception of the region's character. Economists, political scientists, sociologists, and historians have elucidated its differences, drawing on unique characteristics that created a region unlike any other in this nation.

Seven historians present varied arguments in a new book, *Disease and Distinctiveness in the American South*, demonstrating that one of the most fascinating and satisfying means to study this area is through understanding its environment, diseases, medical perceptions and therapy, and what impact these had on historical development. Southerners faced unique health concerns from initial settlement, due to an inhospitable climate, endemic diseases, and frightening epidemics. In the nineteenth and early twentieth centuries, a dispersed agrarian population and widespread poverty made health care difficult. Outsiders accentuated this distinctiveness, defining Southerners as lazy and lethargic. Eventually, scientists and doctors recognized that diseases might be responsible for this perception.

James O. Breeden's opening essay provides a helpful context in which to evaluate those that follow. He argues that the neglected area of health and disease needs more attention when evaluating the South's past. Health was troublesome throughout the colonial and antebellum periods. After the Civil War, Breeden asserts, problems worsened, perhaps retarding economic growth. While some medical professionals expressed concern, New South defenders often denied these problems, wishing to promote their region and present a

positive image. Breeden believes that the New Deal and World War II witnessed improved health, eventually fostering the "Sun Belt" South's closer identity with the rest of the nation.

Diseases of laziness—malaria, pellagra, and hookworm—receive rightful attention, for these endemic illnesses debilitated a significant proportion of the region's population. John Duffy describes malaria's impact on the South, using numerous quotes to argue that malaria was a major health problem from the colonial period well into the twentieth century. Because the disease was so common, and cinchona bark or quinine could quickly remove unpleasant symptoms, malaria elicited little professional interest until well into the twentieth century. DDT and the clearing of lowland areas finally brought an end to malaria in the South.

Hookworms were pervasive, especially among the rural poor. Alan Marcus believes that these parasites, too, generated little interest because they were so well ingrained in the southern social order. Not until the early twentieth century was there a motive for attacking this health problem. In an interesting interpretation, Marcus asserts that nativism encouraged medical attention toward hookworm. As nationalistic sentiments grew by the late nineteenth century, Americans concluded that those individuals—deviants, foreigners, and the unhealthy—who failed to fit the desired norm needed to be separated, removed or integrated into the mainstream. Social concerns spurred national efforts to determine why Southerners, especially sharecroppers, were unhealthy. By the early twentieth century, medical knowledge and the contributions of the Rockefeller Sanitary Commission indicated that one explanation for Southerners' seeming lethargy could be hookworm.

Elizabeth Etheridge, author of *The Butterfly Caste*, presents fresh interpretations on pellagra. She states that this troublesome disease that affected the region's poor was a relative newcomer to the early twentieth-century South. But pellagra probably generated the greatest response from New South defenders who feared the loss of industry, cheap labor, and economic investment should the disease become a focus of national attention. Nevertheless, through the work of doctors and scientists, pellagra was rightfully associated with poor diet. The number of cases declined significantly during the Depression and World War II as Southerners depended on healthful, homegrown food, and eventually could afford a varied diet.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

Yellow fever was not solely a southern phenomenon until the nineteenth century, for the epidemic hit port cities periodically throughout the colonial and early antebellum periods. But JoAnn Carrigan claims that it was "one more peculiar, exotic element" that set the South apart. Because it appeared suddenly, was fatal, and caused major economic and social disruption, yellow fever received disproportionate attention compared to other health problems. Since it more commonly affected immigrants and the urban poor, it also fostered xenophobia among Americans.

Slave medicine, probably the most distinctively regional health topic in the antebellum South, is handled eloquently in an interesting essay by Todd Savitt. Savitt covers three major concerns in his discussion; how medical evidence was used to defend slavery; how work and environment impacted slave health; and what type of medical attention was available to slaves. Antebellum physicians went to great effort to outline the physiological differences of slaves and whites in order to defend slavery. It was apparent that slaves were able to resist certain diseases, such as malaria and yellow fever, more successfully than whites; while pulmonary infections and susceptibility to cold took a greater toll on the chattel population. The essay is replete with fascinating information, some available in other works by Savitt, but it provides one of the more successful efforts in this volume in defining the truly distinctive nature of southern health concerns.

James Harvey Young, an expert on health quackery, concludes this book with its most entertaining essay. Young asserts that the consumption of patent medicines set the South apart to a limited extent. The entire nation depended on the same basic armamentarium in the nineteenth century, but Southerners purchased more tonics for pellagra, malaria and yellow fever. Southern blacks seemed especially vulnerable to the deceptive sales practices of agents hawking special cosmetics such as skin whiteners and hair ointments. In the manufacture of patent medicines, Young argues, the South failed to match northern capital and ingenuity, producing no more than a small percentage of these nostrums. Coca Cola receives mention as a southern invention, but just as one of many "brain tonics" with its trace of cocaine. Eventually this beverage would become one of the New South's real success stories.

This book breaks into a field ripe for attention. Examining health and disease can only help define the distinctive nature of the South, for they played a critical role, both positively and negatively, in shaping the region. Further work in this area will only yield additional fascinating results, allowing a better understanding of the South and its unique past.

Neurosurgeons of the Past, by Louis Bakay. Springfield, IL: Charles C. Thomas, 1987, 109 pp.

Reviewed by Dr. Robert H. Wilkins, Department. of Surgery, Division of Neurosurgery, Duke University Medical Center, Durham 27710.

The majority of this small book is devoted to the neurosurgical accomplishments of several surgeons: Paul of Aegina, who lived in the seventh century, Albucasis (936-1013), Berengario da Carpi (ca 1622), Francois Quesnay (1694-1774), and Ernst von Bergmann (1836-1907).

One chapter concerns the Royal French Academy of Surgery and its prizes, some of which were given for two competitions regarding contre-coup head injuries. The last chapter, about the discovery of the ventricular passages, has to do with anatomy rather than surgery and doesn't fit the overall theme.

The material in this book would be of interest to students of neurosurgical history but not to a general medical audience. □

Letters to the Editor

Comments on ethical guidelines editorial

To the Editor:

In his excellent editorial (Ethical guidelines for expert medical witnesses, NCMJ 1989;50:378-9), Dr. W.M. Hendricks writes that "faculty, members at our medical schools frequently supplement their salaries giving medical-legal opinions." Under ordinary circumstances, I find this deplorable. It changes a noble profession into an ordinary business.

One acceptable reason for receiving payment would be that the physician is disabled from active practice, but is still fully capable of analyzing a case. Here, the physician might be paid by the court or equally by both sides.

I have given several written opinions on medico-legal cases and have insisted on no monetary compensation. If I am paid for my opinion I become very susceptible to bias. The old saying is that "whenever money changes hands, something else always accompanies the transaction."

I have heard the explanation that the lawyers are making large sums from the case, so physicians should do likewise. Perhaps I am stupid, but I am unable to see how lawyer fees are relevant to my ethical standards.

The American Academy of Pediatrics states: "the ultimate test for accuracy and impartiality is a willingness to prepare testimony that could be presented unchanged for use by either the plaintiff or defendant." The Academy judges submission to both sides to be an ideal goal; I regard it as a practical necessity.

I was once asked by a lawyer to analyze a malpractice case. I did and then sent my report to both sides, informing both that I had done so. The lawyer strongly objected and replied that I was biased and it was unethical for me to do this. I answered: (1) he was not charged for my study; (2) his letter contained no request that I send my findings to him; and (3) yes, I was biased; I had been an anesthesiologist for many years and knew how difficult it was to practice perfect anesthesia on every case. I told him that the only way I would analyze a case was to send the results to both sides.

Amazingly, the lawyer graciously accepted my answers and asked for further opinions which I again supplied to both sides. He finally told me that neither side would use me as an expert witness since my analysis did not fully support either party in the case.

In malpractice cases, it seems one lawyer wants the case

to be presented to the jury as all white, and the opposing lawyer wants it presented as all black, when the truth is a shade of grey. A lay jury is supposed to evaluate the competing medical claims! This is an appalling burden to place upon a lay jury. It partly explains why I consider the present malpractice situation often to be unfair to physicians, patients, lawyers, and the public.

Albert D. Warshauer, M.D.
1608 East Fifth Street
Greenville 27858

On a medical student's essay

To the Editor:

I enjoyed reading Mr. William Yount's delightful essay: "To Knock on Poverty's Door: The Story of Evylyn D." in the July 1989 issue of the NCMJ (50:400-1). I hope that he will retain his humanity as he progresses through medical school and will continue to tell us more about his education.

His essay reminded me that few medical students have had his experience and what a shame this is. It also reminded me that I have unconsciously and quite accidentally provided such an experience in considerably greater depth for a sizeable cadre of physicians. I am referring to the more than 55 students who have worked as genetic field workers for me over the last 35 years.

It was my practice to recruit one or more (usually) premedical students each year for this purpose. Their responsibility was to locate, relate to, obtain family data and (usually) a blood sample from members of families whom we were studying. Driving by auto out into the deepest boondocks and utilizing telephone directories, police departments, and other sources of information, they have located and visited the homes of thousands of persons in North Carolina and adjacent states. Usually middle-class themselves, they, like Mr. Yount, have had their eyes opened to how most of our citizens live, move and have their being. They have repeatedly made the discovery that Mr. Yount made, i.e., that patients appear entirely different at home than at church or at the doctor's office. It is too bad that not all medical students have the opportunity to see what he saw.

I am in the twilight of my career, but in the few years left I am willing to arrange similar experiences for other students, or even better, MEMBERS of the N.C. Medical Society not excluding the Editor of its journal.

John B. Graham, M.D.
The University of North Carolina
CB #7525, Brinkhous-Bullitt Bldg.
Chapel Hill 27599-7525

Comment on the pain management article

To the Editor:

I wish to address several issues raised in Dr. Homesley's article that appeared in the July 1989 issue of NCMJ entitled "Morphine: Immediate Release Versus Controlled Release" (50:390-4). I think it is exemplary that we have finally addressed the problems in medical management of cancer-related pain. Recently, the World Health Organization stated that the inadequate treatment of cancer pain is one of the largest health problems in the world today. There is a great deal of confusion concerning the treatment of cancer pain and the uses of immediate release and controlled release Morphine preparations. I feel that Dr. Homesley did an excellent job in presenting several guidelines for usage and conversion of narcotic preparations. However, one of the problems that is most commonly encountered is the subject of narcotic need. I think this was addressed very adequately in noting that tolerance is substantially different from addiction or physical dependence. These are often misunderstood and confused with corresponding disastrous effects on patient care.

I feel that we in the medical community must take a closer look at what is being done in terms of overall care for the cancer pain patients. I am happy that there is an awakening in the medical community both from a care and technological standpoint. I am sorry, however, that there is no mention made of any options between oral medications and continuous Morphine intravenous infusion. In general, continuous Morphine infusion is utilized as a last resort in cancer pain patients. The use of continuous intraspinal narcotic infusions, either epidural or intrathecal, with the development of low cost infusion devices and hardware, has added substantially to the benefits available to this unfortunate group of patients.

John F. Camp, M.D.
Director of Pain Management Center
Orthopaedic Hospital of Charlotte
1901 Randolph Road
Charlotte 28207

Medicare criteria for subspecialist care

To the Editor:

I thought it should come to the attention of the physicians in North Carolina who are not already aware of it that Equicor, the new carrier for Medicare, has changed the criteria for care by Subspecialists in this state. According to a supervisor with this company, "a practicing group of Internists, even though a subspecialist is involved should be able to cross-cover each other once an initial consult is done. There should be no need for concurrent care and daily visits." I find this situation outrageous. This essentially means that Medicare now assumes that Subspecialists and Internists do have comparable skills at all times. Therefore, the only way that a patient could continue with subspecialty care where the physician would be paid would be for the admitting physician to transfer his patient to the care of a Subspecialist.

Is there any way that we as physicians in North Carolina can protest this ruling? I would urge all physicians to contact their subspecialty organizations if they are Specialists and the North Carolina Society of Internal Medicine and The American College of Physicians if they belong to these organizations.

This ruling not only would attack the physicians who are in a group practice and use each other for referrals, but could adversely affect the care of the citizens of the State of North Carolina.

Simmons Patterson, Jr., M.D.
Pinehurst Medical Clinic
205 Page Road
Pinehurst, NC 2837

Anonymous letters

The Editor received two communications from David H. Jones, M.D. The first:

To the Editor:

I guess the answer to my question "Are we such wimps?" is "Yes!"

That you will not publish the enclosed letter over a pseudonym (only the ideas count, not the name of the messenger!) indicates your complete capitulation and collaboration with the murderers of your profession and a clear form of censorship! There are many valid reasons for an idea-maker choosing to remain anonymous at a point in history. The murderous bureaucrats that are killing our profession operate secretly and anonymously! We must react publicly in self defense; at least we should be allowed personal anonymity! Without anonymous letters to editors and pamphleteers, we'd still be a colony of England! If you knew your history you'd know this! If you do know your history, then this is a masochistic passive form of censorship,

unworthy of this profession. Your censorship of ideas is pitiful. Please cancel my subscription to the N.C. Medical Journal. "Censored" (however censored) Journals are worthless! Like Relman and Judas, you are siding with the "outsiders" and have deserted your own honorable (for the most part) profession.

David H. Jones, M.D.
3900 Browning Place
Raleigh 27609

Editor's reply:

He is correct. The journal does not publish anonymous letters.

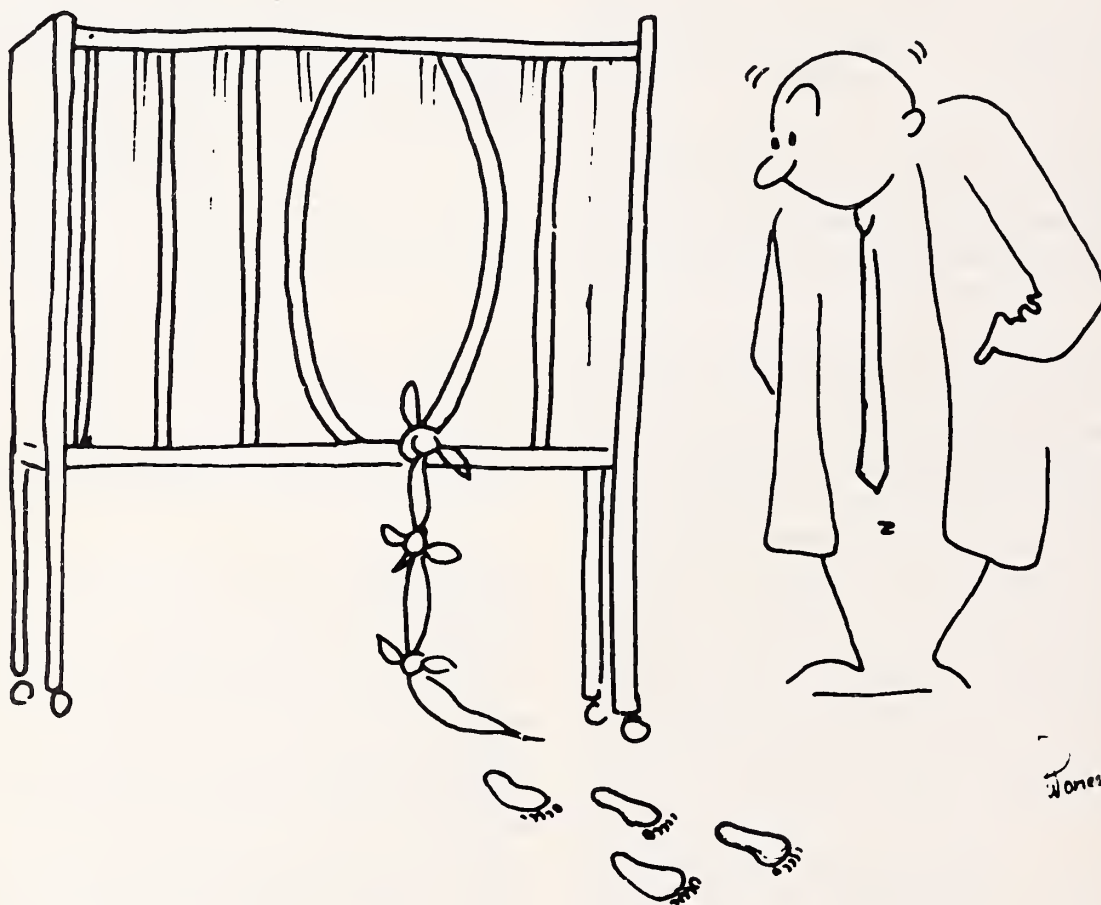
The second letter is signed A. Cincinnatus, M.D. I worked with Cincinnatus and I can tell you, Dr. Jones—you are no Cincinnatus.

Addendum to Dr. Sharp's article

To the Editor:

I would like to make your readers aware of an additional family support group not listed in my June article (Family support in North Carolina, NCMJ 1989; 50:329-32) and July letter (p. 405): Parent-to-Parent Program of Guilford, Rockingham, and Randolph Counties, 379-4373.

Michael C. Sharp, M.D.
Family Support Network
Department of Pediatrics
The University of North Carolina School of Medicine
Chapel Hill 27599-7225



Walter J. Pories, M.D.

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Assessing and Facilitating Communication Skills: Infants, Toddlers, Families and Professionals

Place: Chapel Hill

Credit: TBA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

September 29-30

Practice Management Seminar/Opportunities Fair

Place: Research Triangle Park

Credit: 9 hours, AAFP Elective

Fee: Resident Physicians - \$45; Family Physicians - \$125; Office Managers - \$85

Info: Marietta Ellis, NC Academy of Family Physicians, P.O. Box 18469, Raleigh 27619. 919/847-6467

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Advanced Cardiac Life Support Provider Course

Place: Asheville

Credit: 16 hours Category I AMA

Fee: \$200/Provider; \$100/Recertification

Info: Daniel L. Dolan, MD, Course Director, MAHEC, 501 Biltmore Ave., Asheville 28801. 704/257-4419

October 6

Breast Cancer Symposium

Place: Chapel Hill

Credit: TBA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

October 7

Essentials of Ophthalmology and Otolaryngology for Primary Care Physicians

Place: Charlotte

Credit: 3 hours Category I AMA, 0.7 CEU

Info: David J. Browning, M.D., Charlotte Eye Ear Nose & Throat Associates, 1600 E. Third St., Charlotte 28204. 919/372-3300

October 13-14

Child Abuse Continuing Education Conference

Place: Chapel Hill

Credit: TBA

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October 16-20

The Infection Control Practitioner as an Environmentalist

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Place: Chapel Hill

Credit: TBA

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November 1-3
Responding to Environmental Health Incidents
Place: Asheville
Credit: TBA
Info: Christopher Cooke, Continuing Education
Specialist, Office of Continuing Education, UNC
School of Public Health, CB #8165, Miller Hall,
Chapel Hill 27599-8165. 919/966-1104

November 2-3
Advanced Cardiac Life Support Provider Course
Place: Raleigh
Credit: 16 hours AAFP
Fee: \$150
Info: Helen Creech, R.N., Course Coordinator, Rex
Hospital, 4420 Lake Boone Trail, Raleigh 27607.
919/783-3161

February 1-3, 1990
Geriatric Update
Place: Research Triangle Park
Credit: TBA
Info: Office of CME, UNC School of Medicine, CB
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27599-7000. 919/962-2118

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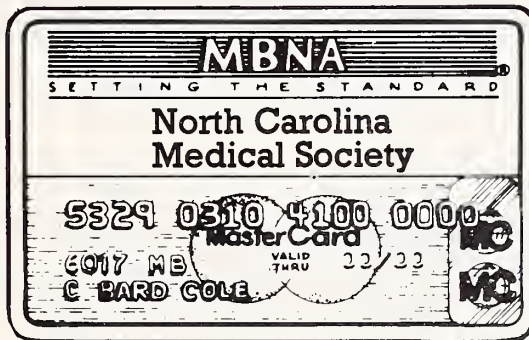
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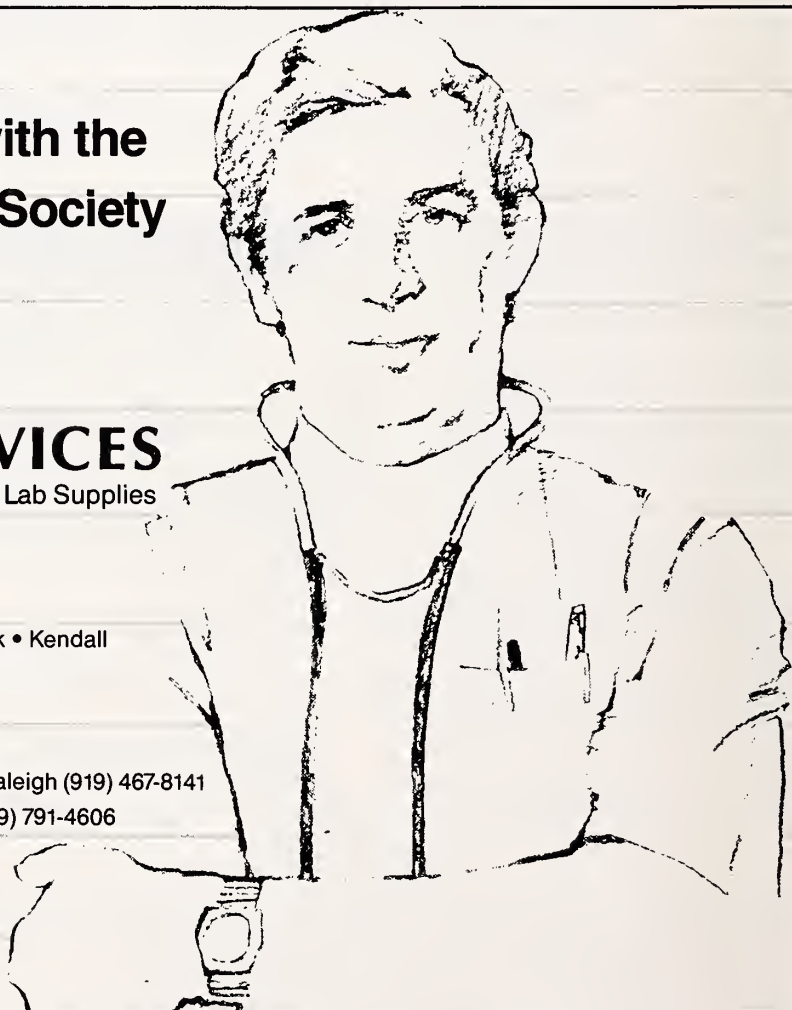
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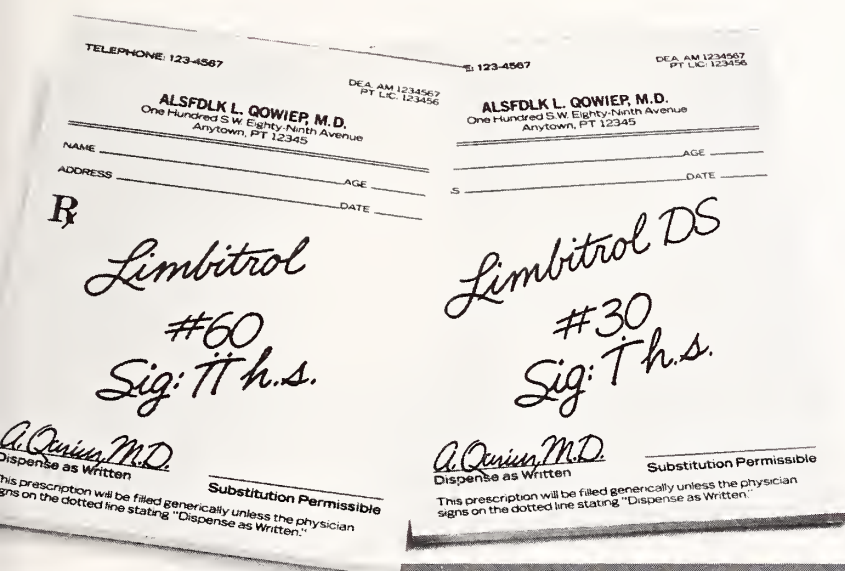


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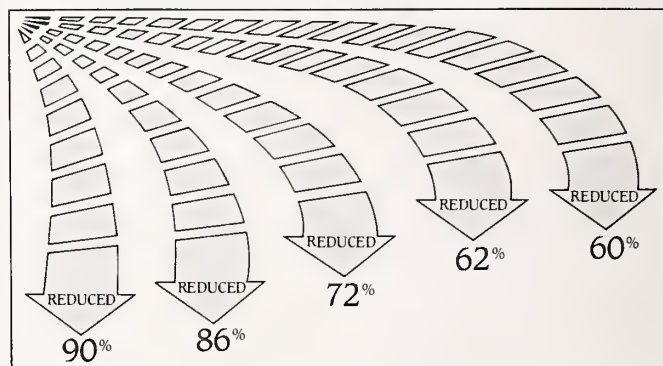
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The
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October 1989
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For Doctors and their Patients

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U-486: Termination of a Pregnancy in the Privacy of One's Home

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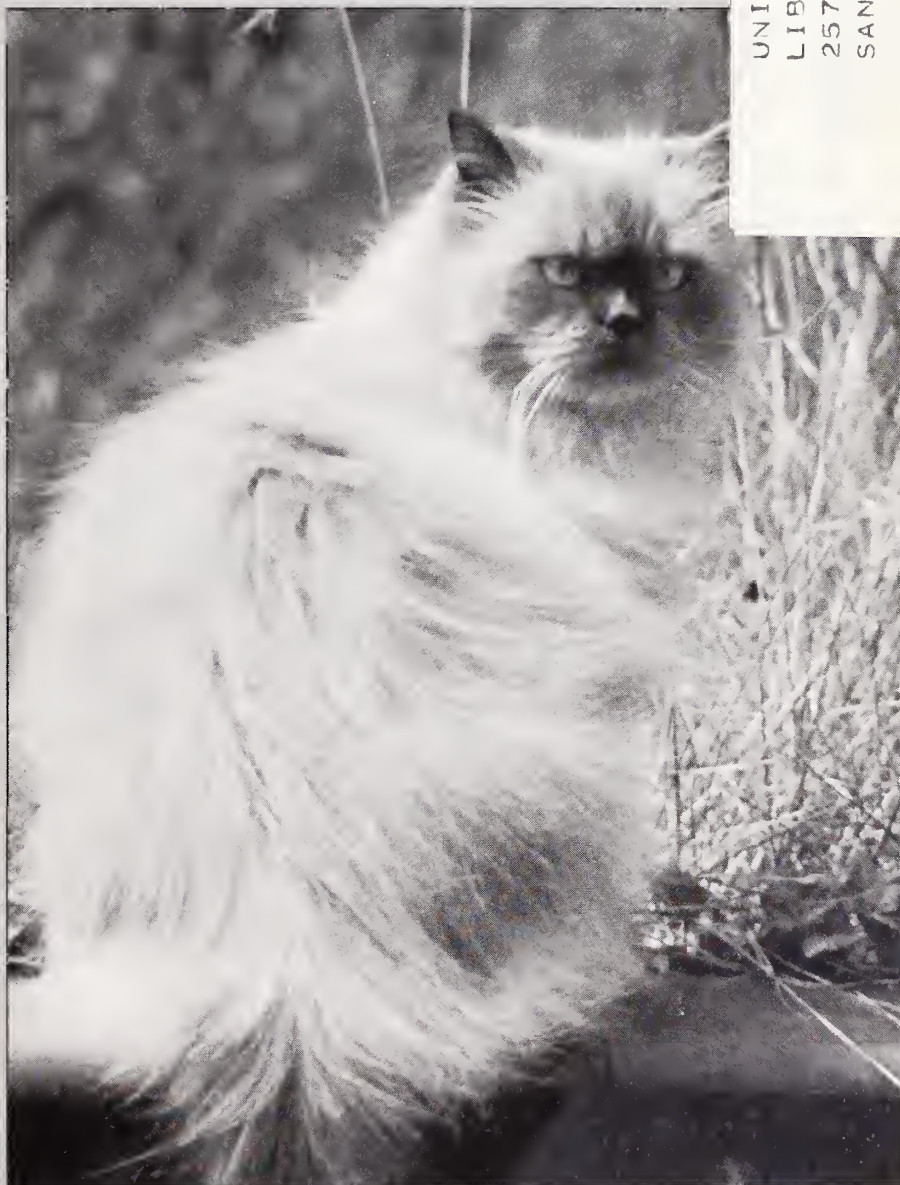
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Sweet Thing

page 563

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For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

October 1989, Volume 50, Number 10

(ISSN 0029-2559)

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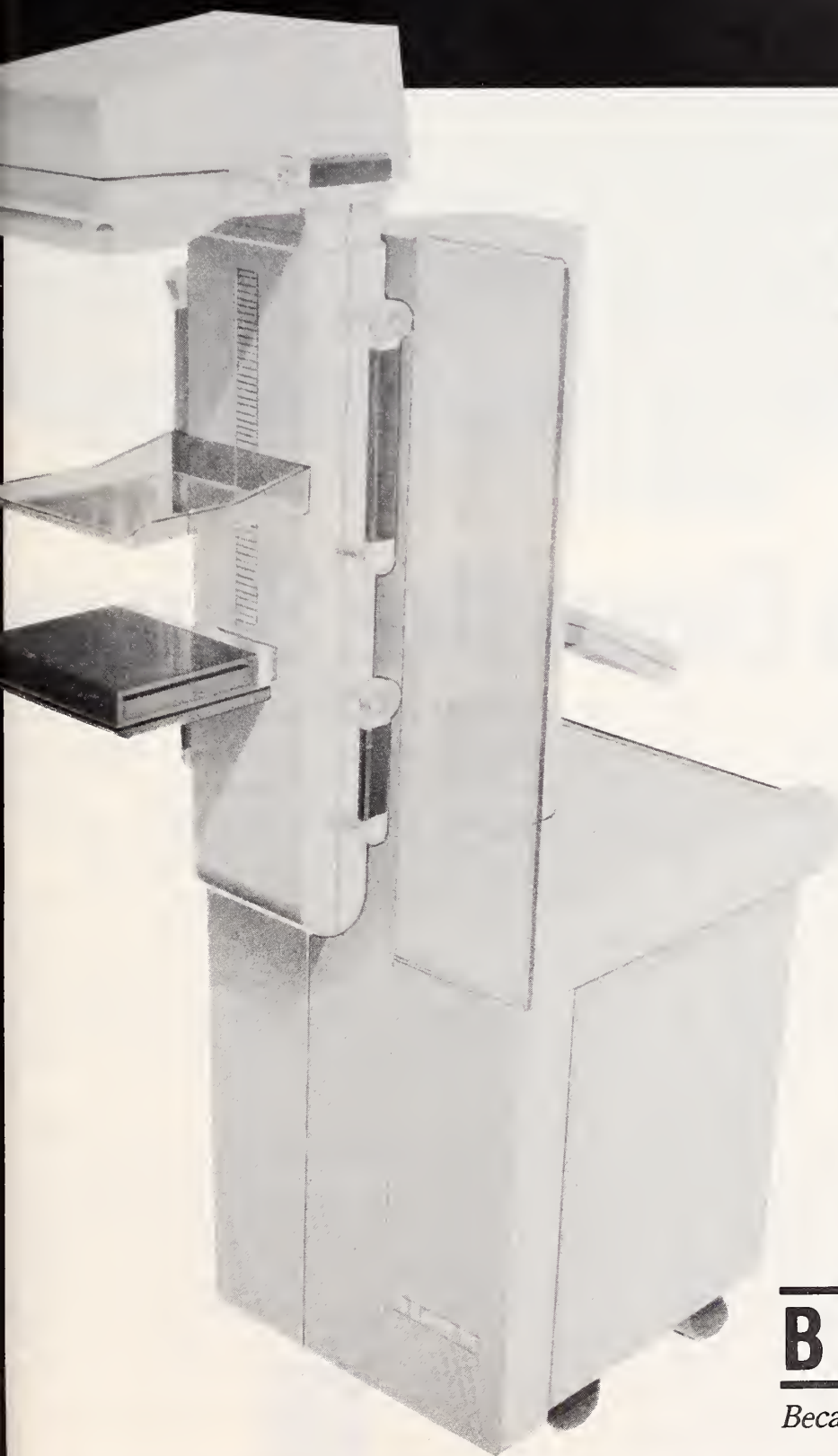
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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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RU-486

Termination of a Pregnancy in the Privacy of One's Home

Malcolm Potts, MB, BChir,* Ph.D.

RU-486 is the first in a new class of drugs with considerable promise in a number of therapeutic areas, from fertility regulation to cancer control. It is a computer-designed molecule that blocks the action of progesterone. The implications of its use, however, are broader than those of practically any other drug.

RU-486 offers the potential of a self-administered abortifacient and therefore raises important and insistent ethical issues. It would be wrong to review RU-486 in the same way that one might review a new hypertensive agent, and misleading not to consider the political, ethical and theological aspects of this new drug.

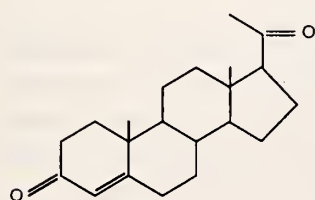
Therapeutics

The development of RU-486 has been a prototypical example of late twentieth century pharmacology and cell biology at its best. RU-38486 (RU-486, Mifepristone), developed and manufactured by the French pharmaceutical firm Roussel-Uclaf, is one of a series of 19-nor steroids substituted with a phenol ring in 11 B position (figure 1). Its action is highly specific; for example, RU-486 has virtually no

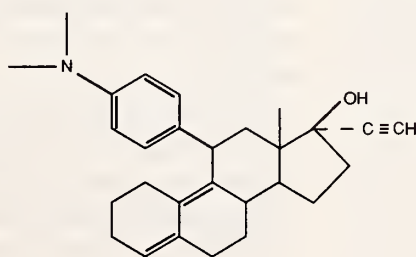
effect whatever on uterine estrogen or kidney mineralocorticoid receptors. Depending on the model studied, it has no, or a weak, agonist activity.^{1,2} RU-486 binds one-fourth as strongly as testosterone to testosterone receptors. Even in high doses it seems to be without side effects other than those which a normal reproductive endocrinology would predict.³

To date, the following actions have been studied:

- 1 Given in the luteal phase of the human cycle (from days 19 to 25), RU-486 brings forward the time of menstruation and induces uterine bleeding, primarily as the result of a direct action on the endometrium, and secondly as the result of a luteolytic effect on the corpus luteum.³ It appears to inhibit gonadotrophin secretion by speeding the rate of LH pulses. RU-486 has been considered as a possible contraceptive for monthly use, but when given this way it causes unpredictable timing of the next period and the idea has not been followed up intensively. It has been tried as a post-coital contraceptive agent.⁴
- 2 Used alone (200 mg x 3 per day for 4 full days), RU-486 will terminate an early pregnancy (up to 41 days amenorrhea).⁵ It is 90% successful if used before five weeks amenorrhea, but success declines markedly with duration of pregnancy.^{6,7} The majority of women bleed for about one week, comparable to a heavy period, but a few have a prolonged loss for up to 14 days. In a clinical trial of 350 volunteers, 10 required surgical uterine evacuation and three needed blood transfusions.
- 3 RU-486 will provoke an abortion in case s of spontaneous fetal death, possibly with fewer side effects than conventional oxytocin.⁸ The induction of labor late in pregnancy is associated with an increase in gap junctions between the myometrial cells, converting the uterus to a "functional syncytium." This change in cellular architecture and function appears to be inhibited by progesterone (Csapo's concept of a progesterone block of myometrial activity) and is therefore facilitated by RU-486.⁹



Progesterone



RU 486

Dr. Potts is a British physician and a laboratory embryologist who has lived in North Carolina for ten years. *'MB, BChir' are the Cambridge University degrees which in the U.S. would be an M.D.

- 4 RU-486 has also been given before the surgical treatment of an ectopic pregnancy, and the medical treatment of ectopics under carefully controlled conditions is an intriguing new research initiative.¹⁰
- 5 In non-human primates, RU-486 has been used to induce labor at term.¹¹ However, RU-486 does cross the placenta and more toxicology data are needed before this indication can be responsibly explored in human therapeutics.
In mechanical abortion, the greatest danger is not uterine evacuation, but the passage of instruments through the cervix that can cause damage to the cervix or the uterus. It is interesting, therefore, that RU-486 can also be used to soften the cervix prior to vacuum aspiration abortion, and although not as effective as prostaglandins (PGs), it is associated with fewer side effects.¹²
- 6 RU-486 has been used experimentally in the treatment of Cushing's syndrome in an attempt to exploit the overlap between blocking progesterone and glucocorticoid receptors. It has no acute effect, but may have a chronic therapeutic use, although once again more research is needed.¹³
- 7 As some breast, ovarian and endometrial cancers carry progesterone receptors,¹⁴ RU-486 has been tested as a therapeutic agent in a limited Phase I trial.¹⁵ A transient improvement was noted in six out of 27 women with advanced breast cancer, and more research is needed in this area. RU-486 may also have a role in treating certain types of meningioma.¹⁶
- 8 RU-486 is likely to have the potential to inhibit lactation in cases such as stillbirth, where there are genuine indications for the suppression of breast-feeding.

The Contraceptational Pill

RU-486 can be used to terminate pregnancy after the fertilized egg implants. By some, it has been dubbed an "abortion pill," but use after a missed menstrual period raises both semantic and therapeutic problems. Etienne Baulieu, who was the leader in developing Mifepristone, has coined the term "contragestational" to describe the anti-fertility action of the drug¹⁷ and to distinguish it from a strictly abortifacient drug which kills a fully formed embryo. We will return to this terminology shortly.

Pharmacologically, as noted above (item 2), RU-486 is not fully predictable in inducing menstruation that is delayed. Its effectiveness, however, increased when its use was combined with PGs. Baird in Edinburgh,^{18,19} Bygdeman in Stockholm,²⁰ and Ulmann in France²¹ have all experimented with combinations of RU-486 and PGs.

PGs themselves were touted as possible "abortion pills" in the late 1970s, and like RU-486 alone, worked often enough to excite medical interest yet failed often enough to undermine safe and responsible use. In addition, PGs were often associated with unacceptable levels of pain, diarrhea and vomiting. Together, RU-486 and PGs, each acting in a

different way, induce abortion in over 95% of cases without unacceptable side effects. In the Edinburgh comparison, for example, PGs administered alone required opiates for the relief of pain in half of all cases; but when used in combination with RU-486, PGs could be given at one-fifth the dose with a marked reduction in side effects.

Currently in France, over 100 women a day use the RU-486/PG combination (600 mg RU-486 plus two days' later injection or suppositories of PGs) to terminate pregnancies, or about 15% of all abortions in that country. Uterine bleeding usually lasts 10 to 12 days, and in 95% of cases no other treatment is needed. In 10% of cases the conceptus is expelled but a surgical D&C is still needed for heavy bleeding.²¹ In the few cases where the RU-486/PG combination fails, it is essential to proceed to a surgical abortion.

Theology

The decision to terminate a pregnancy, by whatever means, like the decision to have a child, is a profoundly important one. The British theologian Gordon Dunstan has written of the need to color all discussion of early human development with a "presumption in favor of life"²² and to keep the tension in any discussion wound up. A great deal of suffering follows for the parents, and for the children, when decisions about abortion or having children are taken with little or no thought.²³

Since the 16th century religious wars, western civilization has considered religious beliefs about life after death as matters of individual conscience, and it can be reasonably argued that beliefs about life before birth are also encompassed by the western tradition of religious toleration. The second Vatican Council stated that the "right to religious freedom has its foundation in the very dignity of the human person, as this dignity is known through the revealed Word of God and by reason itself."²⁴ The U.S. Supreme Court in *Roe v. Wade* (1973) expressed this same tradition unambiguously: "We need not resolve the difficult question of when life begins. When those trained in the respective disciplines of medicine, philosophy and theology are unable to arrive at any consensus, the judiciary, at this point in the development of man's knowledge, is not in a position to speculate as to the answer."²⁵

For those who accept that they live in a pluralistic society that separates church from state, it should be no more surprising to find an abortion clinic in a city where many people sincerely believe the embryo has a "right to life" than it is to find a Mosque, a synagogue and a Christian church in the same city block—each of which symbolizes a profoundly different interpretation of spiritual life after death.

For practically the whole of the past 3,000 to 4,000 years of the Judeo-Christian tradition, societies have associated the gradual development of the human embryo with a moral and legal code that placed less value on the embryo early in pregnancy than later. In Exodus 21:22-23—which is the only reference to abortion in a legalistic sense in the whole of the

Bible—an abortion associated with violence to the woman's body is regarded as a crime but explicitly not as murder, although the subsequent verses deal explicitly with giving an eye for an eye and a life for a life. Hebrew law, reflecting Babylonian law, reckoned a wife as the property of her husband, and an abortion was punished by a fine according to the social standing of the wife. Hippocratic medicine adopted the Hittite principle of grading the penalty according to the gestational age of the fetus.²⁶

Father Norman Ford, a Salesian priest and master of the Catholic Theological College, Melbourne, Australia, has followed the Christian interpretation of early human pregnancy in careful detail in his book *When Did I Begin?*²⁷ Ford points out that the early Fathers of the Church based their thinking on the writing of Aristotle (died 322 BC), who distinguished between material and formal causes of development. Aristotle visualized a nutritive or vegetable soul and a sensitive, rational soul. He stated, "The soul is the cause and first principle of the living body," and suggested that the sensitive soul entered the human embryo at 40 days in the male and at 90 days in the female (this difference was not an early example of crude sexual discrimination, but probably reflected the fact that Aristotle, who was a meticulous observer, mistook the tailfold—which is recognizable at about the 50th day of human pregnancy—for the male genitalia). St. Thomas Aquinas (died 1274 AD) used Aristotle to argue that the intellectual or rational soul was created by God only after "the completion of man's coming-into-being." St. Augustine (died 430 AD), whose writings remain central to the Catholic interpretation of fertility regulation, condemned contraception more forcefully than abortion.²⁸ The Council of Vienna (1311-1312) declared that it was heretical to "hold that the rational, intellectual soul is not in itself in essentially the form of the human body"; that is, they considered it heresy to say the soul entered at what today we would call fertilization.

Human spermatozoa were first seen by the Dutch microscopist, van Leeuwenhoek, in 1678, although it was not until the 19th century that the mammalian egg was discovered and fertilization observed. van Leeuwenhoek used a single lens microscope of unusual design, but subsequent microscopists used non-color corrected lenses which could barely resolve sperm. Some observers falsely believed they could see a tiny human figure or homunculus in the head of each sperm (figure 2). This mistaken observation had an important effect on both biologists and theologians.²⁷ In 1620, Flemish physician Thomas Fienus (Feyens) suggested that human ensoulment began only three days after the semen was deposited, and an increasing number of biologists adopted the idea of preformation, the view that the embryo was fully formed and perfect in all its parts from an early stage in development—rather like a baby without its diapers seen through the wrong end of the telescope. The alternative theory of epigenesis, which Aristotle had espoused, was temporarily eclipsed. Since then, modern embryology has thoroughly confirmed epigenetic theories at the expense of

preformation; but for a short while, the aberration of the homunculus "seen" through imperfect microscopes supported the preformation theory, and theologians became increasingly divided over their interpretation of the timing of ensoulment.

Paradoxically, just as modern embryological study was beginning, Pope Pius IX asserted (1869) the idea of immediate ensoulment coinciding with fertilization, overruling the more gradualist approach which had characterized the previous thinking. The second Vatican Council confirmed this judgment, writing, "Life must be protected with the utmost care from conception: abortion and infanticide are abominable crimes." Yet, the Church always stopped short of "categorically asserting that the fertilized egg itself is already a human being or a person." The remainder of contemporary theologians continue to be divided between those who ascribe a "right to life" from the "moment" of fertilization and those who believe, based on a modern embryologic observation, that the embryo and fetus become increasingly complex and therefore increasingly worthy of legal and ethical protection, as pregnancy proceeds. Ford asserts, "The fact of the matter is the Catholic Church has never officially taught when the individual human being, endowed with a rational soul, begins in the mother's womb."²⁷

In 1987, the Holy Office for the Doctrine of the Faith of the Catholic Church issued an Instruction in Respect for Human Life in its Origin and the Dignity of Procreation.²⁹ Although it condemns in vitro fertilization and abortion, this carefully worded document also points out, "The Magisterium has not expressly committed itself to an affirmation of a philosophical nature, but it constantly reaffirms the moral condemnation of any kind of procured abortion." This seems to leave the door sufficiently ajar for Ford and others who have pointed out that human personhood cannot begin until at or after the primitive streak stage of human development (18 to 21 days after fertilization). The reason is that some identical twins, and all conjoined twins, only develop at the

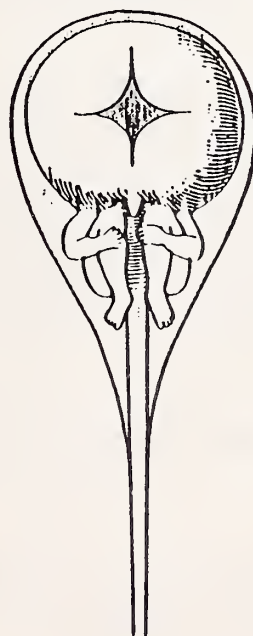


Figure 2.
The homunculus
as drawn by the
seventeenth century
microscopist, Hartsoeker.
From K. Moore,
*The Developing Human:
Clinically Oriented
Embryology*, 3rd ed.
Philadelphia: W.B.
Saunders, 1982.

primitive streak stage; and for human personhood (or ensoulment) to be recognized there must be a physical correlate of human individuality which is truly indivisible. Ford writes, "some are satisfied that the human person is present once a human zygote is constituted with the potential to develop into one or more adult human individuals. Others, myself included, draw the line two weeks later when a living individual human body is actually formed with the active potential to develop further without change in ontological identity. Instead of viewing development in the first two weeks after fertilization as development of the human individual, I have argued the process ought to be seen as a development *into* a human individual."²⁷

Islam also holds that ensoulment occurs at the end of the first 120 days of pregnancy.³⁰ The Holy Koran (23:12-14) has a poetic description of embryological development—from "a drop of seed" to bones clotted with flesh to "another creature."

Used appropriately, RU-486 (and PGs) will act before the primitive streak stage, that is, before the first time when human individuality can be ascribed to the conceptus. Bau-lieu's term "contragestational" does indeed seem apt.

The Law

The UK Ministry of Health has stated that the 1967 Abortion Act is not applicable to such drugs as RU-486. In New Zealand and West Germany, the abortion law does not cover actions taken prior to implantation of the embryo.³¹

From the point of view of physicians, any effort to define life as beginning at fertilization will create some clinical and legal problems. Setting aside the issue of whether fertilization is the penetration of the sperm through the zona pellucida or the cell membrane of the ovum, or the union of the chromosomes of the two gametes, such a definition, if accepted by the courts, would raise serious questions about the use of certain contraceptives, such as the pill and IUD which in some cases may act after fertilization but prior to implantation.

In the arguments recently presented to the Supreme Court in the Missouri case (*Webster v. Reproductive Health Services*, U.S. Supreme Court, April 26, 1989), Justice Scalia agreed, "It is impossible to distinguish between abortion and contraception when [abortion is defined] as the destruction of the first joinder of the ovum and the sperm." The court in *Webster* refused to rule on the preamble of the 1986 Missouri law which gave rise to the case and which states, "The life of each human being begins at conception." Justice Stevens, however, in his dissenting opinion, pointed out the preamble implies regulation not only of previability abortions but also of common forms of contraception, such as the IUD and the morning-after pill.

Any legal effort to define human life as beginning at or around the time of fertilization would also raise serious problems concerning operations for ectopic pregnancy, as

some ectopic pregnancies, if untreated, have the potential to survive to term and produce a viable infant, although the overwhelming majority hazard the life of the woman. Obstetricians would be caught between threats of charges of manslaughter for removing the embryo and the certainty of malpractice suits if they failed to operate.

I have reviewed these theological and legal arguments at some length because what we call RU-486 and how we define its action will, in large part, determine its availability and usefulness.

Politics

It is clear that RU-486 represents the first of a new generation of interesting and important therapeutic agents with a variety of possible applications. The fact that the drug, although relatively new, is well understood and highly specific in its actions has led to rapid marketing approval in the country of manufacture, France (September 1988), and in China, where extensive clinical work has also been completed. (Although the drug also received the trade name Mifegyne, it had already become so famous under its research categorization RU-486 that the earlier designation commonly continues to be used.) Prescription in France is limited to specific abortion clinics and to use within seven weeks of the last menstrual period—five weeks of embryonic development. The price was set at approximately \$100, or slightly less than a surgical abortion. Produced in bulk, and when the development costs have been recovered, it could be sold much more cheaply. To date, work that has been done on the possible teratological effects of the drug have not demonstrated any adverse effects, although more research is needed in this field.

In view of the effect of RU-486 on early pregnancies, the manufacturer, Roussel-Uclaf, made an explicit decision to seek drug approval for the abortifacient indication before exploring other possible therapeutic uses. They argued that the motivation to terminate pregnancies is often extremely strong, even driving women to break laws; therefore, they decided to undertake the necessary clinical work to market the drug for early pregnancy termination, before seeking approval of other possible indications.

However, the day after the French marketing license was given for Mifepristone (in combination with the PGs) to terminate early pregnancy, Roussel-Uclaf suspended sales. The largest holder of Roussel-Uclaf stock is the French government, but 36.25% is held by Hoechst AG of West Germany, and it is thought that the Hoechst management brought particular pressure on Dr. E. Sakiz, the President of Roussel-Uclaf, to suspend sales. Hoechst (formerly IG Farben) had been accused of manufacturing the poison gas used for the Nazi concentration camps and, even though they denied this, they were afraid abortion opponents would raise this canard again. (In a paradoxical footnote to 20th century history, which has been overlooked in contemporary polemics, Adolf Hitler explicitly condemned abortion as immoral

for German citizens. The Nazis in Germany [and Vichy France] were the last rulers—until contemporary Iran—to enforce the death penalty for abortions.³²⁾

Two days after Roussel's decision, which was an unprecedented act in the history of ethical, multinational pharmaceutical manufacturers, another startling development occurred. Claude Evin, the French Minister of Health, "in the interest of public health ... called on Roussel-Uclaf Laboratory to resume distribution of RU-486." Roussel Vice President Pierre Joly remarked, "We are relieved of the moral burden," and the drug went back on the French market.

The withdrawal of RU-486 happened to occur at the time of the meeting of International Federation of Obstetrics and Gynecology in Rio de Janeiro. When news reached Brazil, more than one thousand obstetricians quickly signed a petition requesting that the drug be put back on the market. Some of those signing were individually opposed to abortion but felt that RU-486 was an important therapeutic agent, that scientific investigations should not be determined by political considerations, and that, furthermore, when abortion was legal in a country, it should be done by the safest and most acceptable means possible.

The Future

Much of the lobbying of the Roussel-Uclaf company against RU-486 was sponsored by Right to Life movements in the United States, and events in Paris were reported in detail in the U.S. media. The debate over RU-486 in the U.S. is now so vitriolic, and the possible product liability of the burden of any such drug so uncertain, it seems unlikely that any company will wish to bring this drug to market. Roussel-Uclaf has now withdrawn marketing applications in Britain and the Netherlands although in both cases these were well-advanced and appeared likely to be approved by the respective governments. In the short term, it seems unlikely that RU-486 will become available outside France, although with the further unification of the European common market in 1992 it may be legally difficult to keep the drug within the political frontiers of the French republic.

RU-486 is a moderately complex steroid to synthesize, but it is known that at least one other country that does not recognize international patent agreements has already made small quantities. As is often the case with abortion, extreme efforts at restriction may simply end up inviting illegal distribution, with all the concomitant dangers and exploitations that go with illicit use.

Conclusions

Unless there is a marked improvement in contraceptive choices and a massive infusion of funds into family planning programs, it seems likely that more abortions will be induced (legally or illegally) in the next ten years than in any com-

parable decade in human history. With unprecedented numbers of young women entering their fertile years and an increasing desire to limit family size, upwards of five million women are likely to die from pregnancy, childbirth and abortion in the 1990s.

The World Health Organization (WHO) has stated that, "Although abortion is not acceptable as a family planning method, the WHO recognizes that safe and effective medical methods of early termination of pregnancy have the potential for less adverse effects (psychological, physical and medical) than surgical methods" and is continuing research on RU-486. The International Planned Parenthood Federation considers that "the antiprogesterone RU-486 has a great potential as a method of birth control and it may also have other important therapeutic applications."

Religious variables³³ and the law on abortion³⁴ appear to have little effect on the absolute number of terminations taking place. Rather, abortion numbers appear to be determined by the stage of the demographic transition, with many abortions taking place as a society first begins the struggle to control fertility.^{35,36} The poorest and least privileged, for obvious reasons, often find it most difficult to gain access to contraceptive services and often end up having the most abortions.

The risks of mechanical abortion vary greatly according to whether the operation is legal or illegal. Operative procedures are 10 to 20 times as safe for the woman if performed in the first eight to 12 weeks of pregnancy, compared with those conducted in the second trimester. Vacuum aspiration is safer than D&C.³⁷

Insufficient experience exists to say whether medically induced abortion using RU-486 and prostaglandins will be as safe or safer than surgery early in pregnancy. But it is known that 77% of women who have had the RU-486/PG combination and who have had a surgical abortion earlier in their lives prefer the medical termination. It is reasonable to assert that 99% of women would prefer the new option to a bent twig, a painful massage abortion, or a tetanus contaminated "sonda."

The urge to have an abortion is strong and human persistence great. Many people set dual and conflicting standards in anything to do with sex and most especially the exploitation and control of women. Therefore, it seems possible that RU-486 may get around the world through illicit channels, possibly as the result of manufacture outside France. If this occurs it will give rise to both bad medicine and bad ethics. In addition, the possible therapeutic benefits of an important new class of drugs (in such areas as the treatment of meningiomas) will never be properly explored. □

Acknowledgment

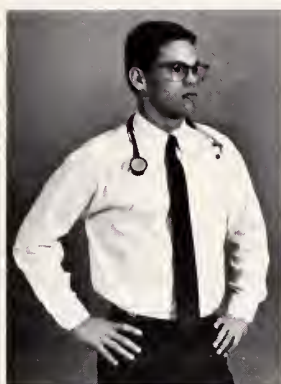
I would like to thank Thomas Petrick, Arlene McKay and Andre Ulmann for advice and guidance on this manuscript. The views expressed, however, are entirely my own and do not represent those of any other person or institution.

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Cysticercosis: Pandemonium in Pigdom

William P. Cheshire, Jr., M.D., James F. Howard, Jr., M.D., and Jack Young, M.D.

Human cysticercosis is caused exclusively by infection by the larval form of the pork tapeworm, *Taenia solium*. World-wide it is the most important parasitic disease of the central nervous system. The disease is especially prevalent in underdeveloped countries where sanitary rules for the consumption of pork are not strictly observed. Rates of prevalence in endemic areas range from 0.1% to 3.6% by necropsy series.¹ Formerly a medical curiosity in the United States, its incidence is increasing in southwestern states largely because of Hispanic immigration.²

Our patient is a 17-year-old Mexican female migrant farm worker who had a generalized tonic-clonic seizure following a two-day prodrome of headache, blurred vision and emesis. Family history was negative for seizures. Her physical examination, including neurological and slit lamp examination, was entirely normal. Computerized tomography (CT) of the head revealed several areas of low density with central punctate high density. Lesions were visualized in greatest detail by magnetic resonance imaging (MRI), appearing in T1-weighted views as numerous small ring-shaped areas of increased signal with curved processes extending into the center. They were found at grey-white junctions, in the basal ganglia and the lateral ventricles (figure 1). Roentgenograms of the chest, thighs, pelvis and arms were negative for soft tissue calcification, and *Taenia* ova were not seen in stool smears. Cerebrospinal fluid analysis was normal. Electroencephalography demonstrated sharp waves originating diffusely from both cerebral hemispheres.

The patient was treated with phenytoin and a 15-day course of oral praziquantel, 50 mg/kg divided t.i.d. On her second day of praziquantel another seizure occurred. Followup MRI six months later showed a marked reduction in both size and number of lesions, although two within the lateral ventricles appeared less diminished (figure 2). One seizure occurred one year later when the patient stopped taking phenytoin.

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Discussion

Cysticercosis has been known since ancient times. Its name, given by Laennec, derives from the Greek words "kustis," meaning bladder, and "kerkos," tail. Aristophanes, writing in the fifth century B.C., mentioned infection of the pig. Cysticercosis of the human nervous system was described at necropsy by Paranoli in 1550 and by Rumler in 1558, but the relationship of the larval parasite to the adult tapeworm was not recognized until 1853 as demonstrated by Van Beneden, and later proved experimentally by Huebner, Küchenmeister and Leuckart.¹

Following ingestion of raw or undercooked, so called "measly," pork containing the larval cysticercus (scolex), the larvae attach to the mucosa of the jejunum by four muscular suckers and a double row of hooklets. Multiplying proglottid segments compose the adult *Taenia solium* which may live up to 25 years, spanning one to eight meters in length. Gravid proglottids liberally release ova before and after they separate and are passed with feces. Ova thus deposited on the soil remain viable for several weeks, and gain access to the intermediate host when they are swallowed along with fecally contaminated food.

While taeniasis—intestinal infection by the adult tapeworm—occurs only in humans, cysticercosis—invasion of tissues by *Taenia* larvae from ingested ova—occurs both in pigs and, as a sort of biological blunder in the usual route of transmission, in humans, an inadvertent intermediate host. Autoinfection occurs when eggs are carried to the mouth by the hands of the host or to the stomach by reverse peristalsis. Cysticercosis may also be acquired iatrogenically in South Africa where tribal shamans prescribe *Taenia* proglottids medicinally.¹

Once ingested, the ovum exposed to gastric acid sheds its cuticle, releasing the oncosphere which penetrates intestinal mucosa and migrates hematogenously to many tissues. For unknown reasons it has a predilection for skeletal muscle, the eye and the central nervous system. Within two months a metamorphosis occurs. An opalescent thin walled cysticercus develops and invaginates to form the scolex, which is

sometimes visible to the slit lamp undulating in the vitreous humor.³ Each scolex is capable of becoming an adult tapeworm in the definitive host, and remains viable within its bladder cysticercus for several years. Cysticerci within skeletal muscle may be palpable or calcified lesions visible by x-ray. These sometimes yield a painful myopathy but are usually asymptomatic. In pigs they may be detected under the tongue.⁴

Within the nervous system cysticercosis is capable of producing a wide variety of signs and symptoms depending on the number and location of lesions. Symptoms may appear in less than one year or as many as 30 years following exposure, with a mean of about five years.¹ An exudative reaction ensues about the cyst, with eosinophilic, lymphocytic and plasma cell infiltration, granulomatous inflammation and arteritis in adjacent vessels, which may persist after the death of the organism. Transient serum or cerebrospinal fluid eosinophilia may be seen.⁵ Cerebral lesions do not calcify to the same extent as those in skeletal muscle. Parenchymal, subarachnoid or spinal cord lesions may mimic the spectrum of neurologic disorders. Increased intracranial pressure and seizures of all types are the most common presentations and often the onset is abrupt. Death of the cysticercus can lead to osmotic swelling with sudden focal deficits or stroke. Intense inflammation occurs in racemose cysticercosis, the most severe form, in which large multiloculated cysts form in the basal cisterns, resulting in meningitis, obstructive hydrocephalus and cranial nerve palsies. Free floating ventricular cysts may be observable by MRI when invisible to CT scanning.^{6,7} Cysts of the fourth ventricle may cause obstructive hydrocephalus or positional headaches.⁸ A broad range of psychiatric symptoms may also emerge, including confusion, dementia and psychosis.

Several immunologic tests are available for diagnosis, but these tend to be less helpful than radiologic studies.^{2,6} The larva is initially invisible to CT and MRI until it forms a bladder, and then appears as a cystic lesion. The scolex may be discernible in T1-weighted MR images, and diffuse hyperintensity characterizes the corresponding lesions in T2 images. Upon the death of the scolex, the bladder enlarges and may appear as an enhancing ring by CT, either with or without contrast media. Old lesions, when visible, appear as punctate mineralizations by CT and as T2 signal voids by MRI. Racemose cysticercosis may display loculated cystic areas by either technique.

Praziquantel was the earliest specific pharmacologic treatment for neurocysticercosis.^{9,10} Another drug, albendazole, has recently become available and is at least as effective.¹¹ One study has reported that a short course of albendazole at 15 mg/kg daily for eight days resulted in a 97% reduction in the number of lesions.¹² In the event that one drug is incompletely effective as judged by clinical signs or cranial imaging, the other may subsequently be used.¹³ Both drugs attack larval and adult stages of *Taenia solium*.

The inflammatory response of the host to the death of scolices may lead to adverse reactions in the form of in-

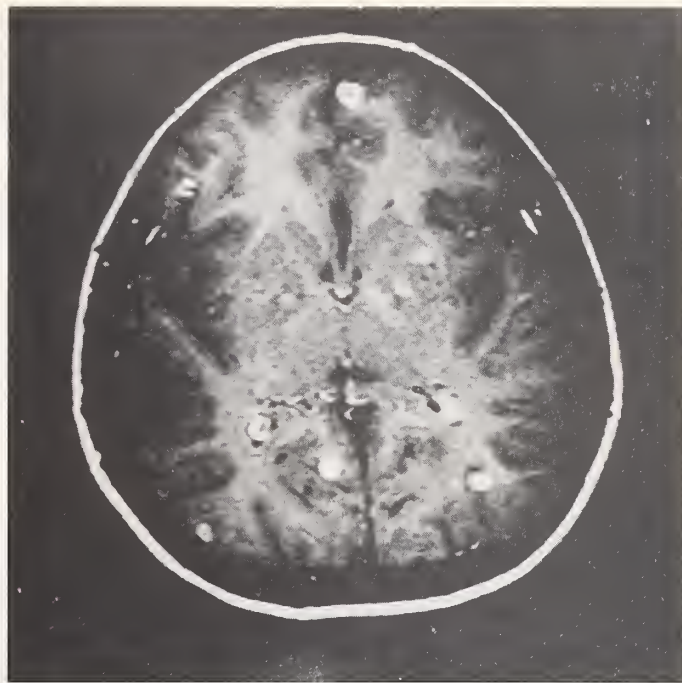


Figure 1. Cranial Magnetic Resonance Imaging (MRI) study at the time of initial presentation. These T1-weighted images demonstrate numerous, small, ringed-shaped areas of increased signal at the gray-white junction and in each lateral ventricle.

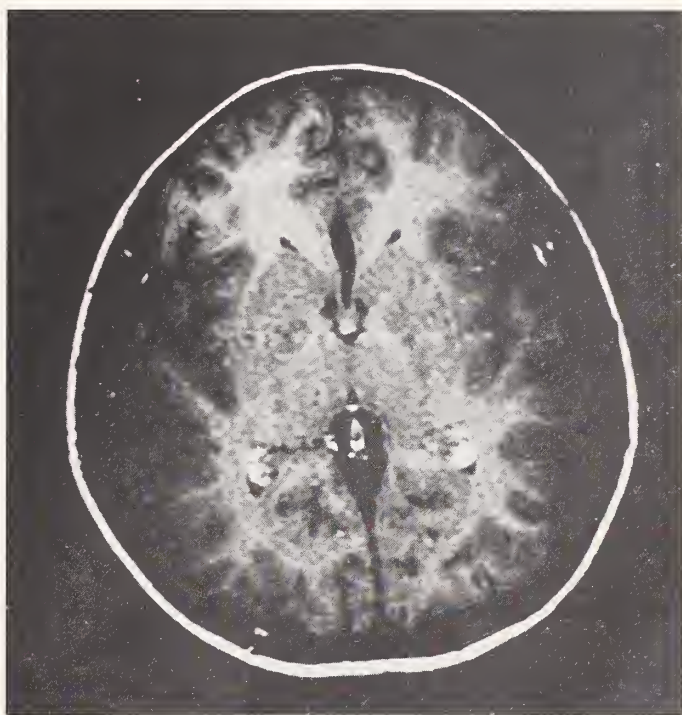


Figure 2. Cranial T1 MRI study obtained six months after praziquantel therapy. Note the marked reduction in number of the previously described areas of increased signal. The two intraventricular lesions remain.

creased intracranial pressure, seizures or meningismus transiently during the first week of treatment.⁹⁻¹⁴ For this reason patients with encephalitis, cerebral edema or intracranial hypertension should be treated with caution or antihelminth

treatment delayed. The extent of acute destruction of cysticerci may be traced by the presence of edema in T2 weighted MR images.¹² Some authors advocate the use of steroids to control adverse reactions,^{11,14} though this is not always necessary and has been found to decrease serum levels of praziquantel.¹⁵ Severe arachnoiditis may necessitate surgical placement of a ventriculoperitoneal shunt to relieve obstructive hydrocephalus, and large fourth ventricle cysts sometimes require resection.¹⁶ Phenytoin or carbamaz-

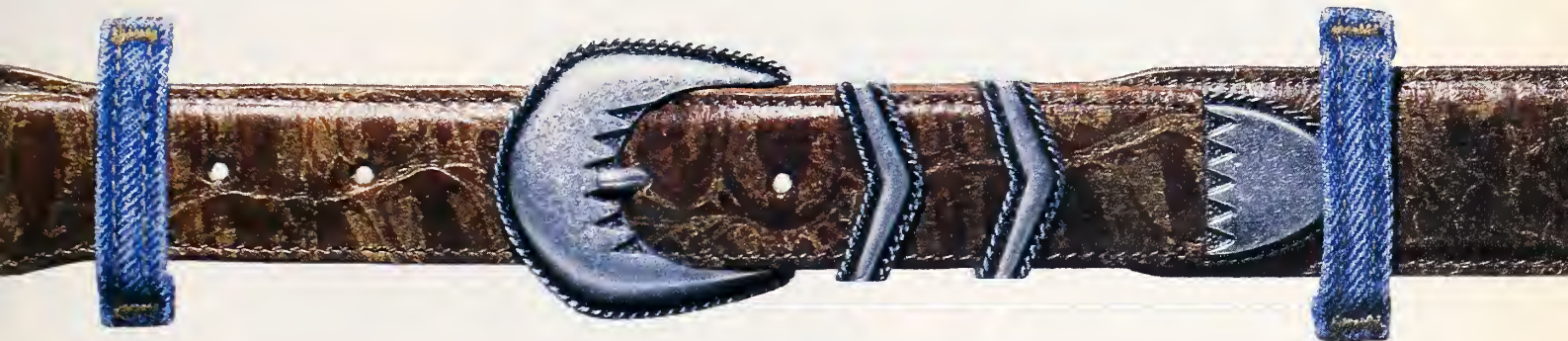
epine are the preferred anticonvulsants in patients with seizures.

The diagnosis of cysticercosis should be entertained whenever seizures, increased intracranial pressure, focal neurologic deficits or psychiatric disturbances occur in the appropriate demographic setting. The best treatment, of course, is prevention by sensible sanitary practice. The wise will do well to heed the culinary advice of Shakespeare's Dromio of Ephesus, "The pig, quoth I, is burn'd."¹⁷ □

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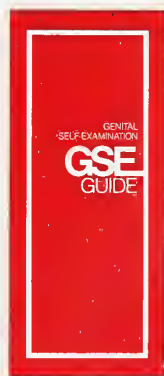


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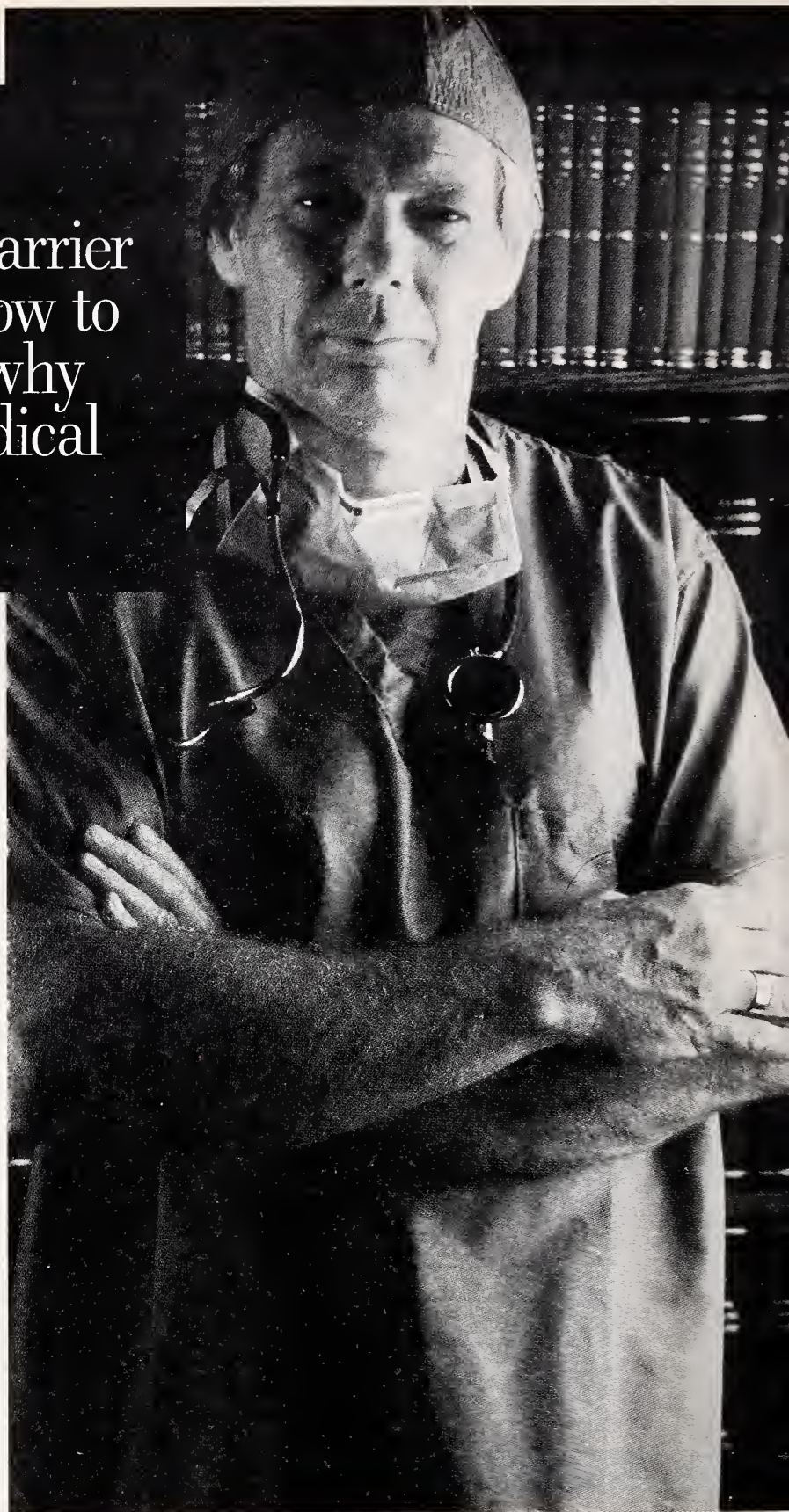
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A Rare Cause of Intra-Abdominal Hemorrhage

Leiomyoma of the Small Bowel

Mark Hennington, M.D., Fred Long, M.D., Dale Oller, M.D.

Although many benign small bowel tumors are asymptomatic and found only at operation for unrelated diseases, intermittent small bowel obstruction (40-70%) and gastrointestinal bleeding (20-50%) are prominent findings in patients with symptomatic benign tumors.^{1,2} We report a case of a jejunal leiomyoma which caused life-threatening intraperitoneal hemorrhage. The usual complications of benign small bowel tumors have been reported often, but in a review of the literature, we found only one case of intraperitoneal hemorrhage secondary to a bleeding leiomyoma of the small bowel.³

Case Report

An otherwise healthy 44-year-old woman presented to the Emergency Department with a 24-hour history of severe abdominal pain. On further questioning, a two-month history of progressive weakness and associated abdominal discomfort was elicited.

She was sweating and had a rapid heart rate with a blood pressure of 80/40. She had a distended, quiet abdomen with evidence of diffuse peritoneal irritation. Rectal and pelvic examinations were normal. Laboratory results were unremarkable except for a hematocrit of 17, a normal white blood count and hypochromic microcytic indices. Chest and abdominal radiographs were normal.

After initial resuscitation, the patient was taken emergently to the operating room. Laparotomy was performed revealing 800 ccs of a mixture of old and fresh intraperitoneal blood. A pedunculated antimesenteric jejunal tumor was found which had twisted on its blood supply to the jejunum

(figure 1, next page). Brisk venous bleeding was present from large surface veins. No other intraperitoneal pathologic entity was noted. The tumor and 3 cms of adjacent bowel were resected and primary anastomosis performed. The patient's postoperative course was uneventful and she was discharged home on the sixth postoperative day.

Grossly, the tumor measured 15x10x9 cms and weighed about 540 gms. Externally the tumor had several large areas of necrosis indicating that it had apparently outgrown its blood supply. The tumor was not connected to the bowel lumen, and microscopically the lesion consisted of large spindle-shaped cells with rare mitotic figures. Grossly and microscopically, the tumor was consistent with a leiomyoma.

Discussion

Benign small bowel tumors do not usually cause symptoms, and in clinical series they comprise only about 0.5% of all gastrointestinal tumors.³ By contrast, autopsy series show that benign tumors are possibly three times more common than malignancies. Because of the rarity of symptoms and their location, small bowel tumors present difficult problems in diagnosis and management. When they are symptomatic, benign tumors usually present as intermittent small bowel obstruction or gastrointestinal bleeding; however a wide range of presentations have been reported—nausea and vomiting, anorexia, weight loss, diarrhea, and mass.^{1,4}

Leiomyomata may reach a large size before becoming symptomatic. They most frequently ulcerate and bleed in an occult fashion intralumenally. There can be an extensive network of vessels with increased blood flow.³ The lesions may be intraluminal, intramural or extraluminal intraperitoneal, and occur more often in the distal small bowel. They may be polypoid and act as the lead point for intussusception.^{1,4,5}

Leiomyomata are the most common benign small bowel tumor. Adenomatous polyps, lipomas, angiomas, neurofibromas and fibromas occur less frequently. Gastric and pancreatic rests also present as benign small bowel masses and with intestinal polyposis syndromes likewise are fascinating but beyond the scope of this paper.

Diagnosis of small bowel tumors is often difficult secondary to the varied presentation. Contrast radiography is the cornerstone of diagnosis; however, only about 50% of the tumors can be diagnosed radiographically before surgery.⁴ Other diagnostic studies such as Technetium 99m RBC scanning, enteroscopy, and visceral angiography are modalities that can aid in diagnosis.⁶⁻⁸ Computed tomography scanning is particularly useful for the diagnosis of extraluminal leiomyomata.¹

The treatment of choice for most small bowel tumors is surgical excision. Benign tumors can be locally excised simply, or more usually with a short segment of bowel and primary reanastomosis as in our case. For duodenal tumors, excision can be tricky, but pancreaticoduodenectomy can rarely be justified for benign lesions. For cases involving distal ileum, or right colon, right hemicolectomy might occasionally be required on the basis of anatomic blood supply. The prognosis for benign small bowel lesions is excellent. The problems lie in the correct diagnosis and not overlooking gastrointestinal malignancies which have the same peak incidence as benign systemic tumors.

Summary

As a result of infrequent occurrence, small bowel tumors of the intestine offer a diagnostic challenge. A spectrum of presentations are possible, ranging from vague abdominal symptoms to life-threatening intra-abdominal hemorrhage. Contrast radiographs are helpful in diagnosis but additional studies may be necessary. Treatment is usually simple excision. The prognosis of benign tumors is excellent. Because of the non-specificity of signs and symptoms of small bowel tumors, a high index of suspicion is required, especially since these lesions themselves can be dangerous and often occur in the age group for intra-abdominal malignancy. □

Acknowledgment

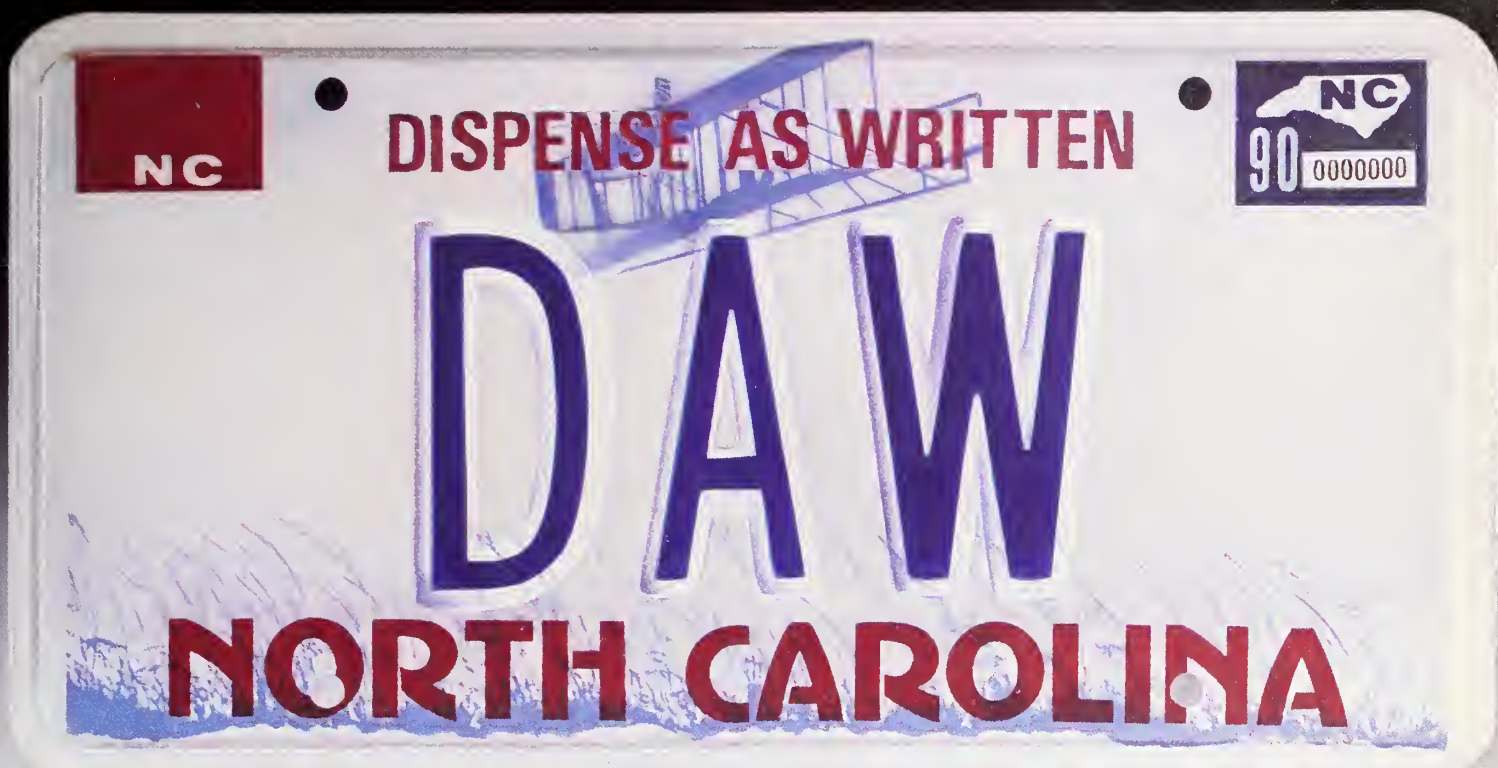
The authors would like to recognize Ms. M.L. Mackintosh for her contribution to this publication.



Figure 1. Gross operative photo of a small bowel leiomyoma.

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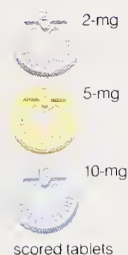


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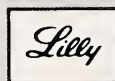
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The Multidisciplinary Approach to Adenocarcinoma of the Prostate at Moore Regional Hospital*

Mitchell S. Anscher, M.D.,^{1,4} DuWayne Gadd, M.D.,³ Louis Marchetti, M.D.,² Samuel Storch, M.D.,² C. Rodney Lenahan, M.D.,³ Elizabeth F. Gaydica, R.N.,¹ Gustavo S. Montana, M.D.^{1,4}

Adenocarcinoma of the prostate is a very common malignancy with an estimated 103,000 cases diagnosed nationally in 1989.¹ The American College of Surgeons has noted a trend toward increasing use of radiation therapy as curative treatment for early stage prostate cancer.² The National Institutes of Health Consensus Development Conference on the Treatment of Prostate Cancer has stated that radiotherapy and surgery are both effective therapies for early stage disease.³ It is widely accepted that radiotherapy is the treatment of choice for Stage C prostate cancer.⁴

The vast majority of data concerning radiotherapy for prostate cancer have been derived from studies originating in large university centers.⁵⁻¹⁰ These studies have served to establish the validity of radiotherapy as a curative treatment modality for prostate cancer. In 1974, the Patterns of Care Study in Radiation Therapy (PCS) was established nationwide and as such it has provided a mechanism for quality control for radiation oncology. Facilities of all sizes, both university and private, were surveyed, and national benchmarks for the treatment of prostate cancer and other malignancies were established.¹¹

*Editor's note: Quality assurance is an increasingly important requirement for hospital accreditation. This study can serve as a quality assurance model for staffs of community hospitals. For this reason, the editors have elected to publish a paper which is longer and more specialized than is our wont.

From the Department of Radiation Oncology, ¹Moore Regional Hospital, Pinehurst; ²Mid-South Urology Center, Pinehurst; ³Pinehurst Surgical Clinic, Pinehurst; and ⁴Division of Radiation Oncology, Duke University Medical Center, Durham.

University centers generally adhere to the standards of care established by the PCS. However, a substantial number of patients are irradiated outside of the university centers. The Joint Commission on Accreditation of Hospitals (JCAH), as part of its quality assurance evaluations, is now beginning to inquire as to whether or not Radiation Oncologists are analyzing results and complications of therapy. In fact, such an inquiry was made at the recent JCAH evaluation of Moore Regional Hospital. It is likely that the JCAH will require patient care evaluations of hospital based physicians in the near future, especially in regard to common diseases such as carcinoma of the prostate.

With these points in mind, we have undertaken a review of the patients treated for prostate cancer with radiation therapy at Moore Regional Hospital in Pinehurst, North Carolina.

Materials and Methods

From November 1981, when our facility opened, until June 1988, a total of 72 patients were referred for curative irradiation for adenocarcinoma of the prostate. In general, patients received radiotherapy instead of radical prostatectomy for the following reasons: after treatment options were explained, the patient opted for radiation therapy (stage A and B); the cancer was found to be too extensive for radical prostatectomy (stage C); the patient was found to have pelvic lymph node metastases at the time of pelvic lymph node dissection and therefore radical prostatectomy was not performed (stage D₁); or the patient had underlying medical conditions, such as heart disease, which precluded surgery. During this period there were also 15 patients referred for postoperative irradiation following radical prostatectomy after tumor was found in the surgical margins, four patients treated for local recurrence of tumor after radical prostatec-

tomy, and two patients referred for irradiation with local progression of tumor following hormonal therapy with Diethylstilbestrol and/or orchiectomy. These 21 patients are excluded from analysis.

Although our facility opened in 1981, our group had been providing Radiation Oncology consultations at Moore Regional Hospital prior to that date, with patients receiving radiation therapy at North Carolina Memorial Hospital (NCMH) under the supervision of the senior author (GSM). Our group evaluated five patients prior to 1981, treated by the senior author (GSM) at NCMH in accordance with the treatment technique outlined below, and followed at Moore Regional Hospital. These five patients are included in this study.

Pre-treatment evaluation included a history and physical examination, routine blood work including acid and alkaline phosphatase, and various radiographic studies including chest x-ray, bone scan, computerized tomography (CT) of the pelvis, lymphangiography (LAG), excretory urogram (IVP), and plain films of the bones. As of late 1987, we have been obtaining Prostate Specific Antigen measurements prior to irradiation. However, as of the closing date of this study, too few patients had had this tumor marker measured both pre- and post-irradiation to comment on its usefulness. Therefore, this information is not included in this report.

Clinical staging was determined at the time of diagnosis utilizing the American Urologic System¹² (table 1). Histologic grade was determined by a review of the pathology reports. Tumors were classified as well, moderately, or poorly differentiated, corresponding to Gleason grades 2-4, 5-7, and 8-10, respectively. In the Gleason grading system, a number from 1 to 5 is assigned to the most common and next most common histologic patterns present in the tumor according to the degree of differentiation, with 1 being the

most differentiated and 5 being the least differentiated. The two numbers are added, giving a score between 2 and 10, which has been shown to correlate with both survival and the likelihood of having pelvic lymph node metastases.^{13,14}

The radiotherapy technique consisted of 45 to 50.4 Gy (1 Gray (Gy) = 100 rad) to the whole pelvis using an isocentric 4-field box arrangement with customized cerrobend blocks designed to protect the small bowel. After July 1987, our policy was changed and patients with Stages A and B disease were treated only to the prostate, periprostatic tissues and seminal vesicles, for the first 45 Gy. Stage C and D₁ patients continued to receive treatment to the regional lymphatics. Fields were then reduced to cover only the prostate and periprostatic tissues, and final doses of 61 to 70 Gy were delivered using the 4-field box technique. All doses were calculated as a minimum tumor dose as determined by individual computer generated isodose maps constructed for each patient (figure 1). Patients were treated on a Varian 6MV linear accelerator five days per week. Daily doses ranged from 1.8 to 2 Gy. Two fields (either anterior and posterior of right and left laterals) were treated each day.

Patients were evaluated with respect to overall survival, site(s) of failure and cause of death. Patients lost to followup were censored as alive with or without disease as of that date. Initial sites of failure were scored as local alone, local plus distant, or distant metastases only.

Local control was defined by the absence of any palpable abnormality in the prostate gland. Biopsies of the prostate after radiotherapy were not routinely performed. A new palpable abnormality in the prostate gland, or a persistently abnormal feeling prostate, was considered a local relapse. Biopsy confirmation was not required. Distant metastases were documented by the appropriate radiographic study. Routine bone scans or other x-rays were not obtained unless symptoms, such as bone pain, were present. Acid phosphatase determinations were routinely obtained at follow-up visits. Isolated elevations of acid phosphatase were not considered a treatment failure. Prostate specific antigen measurements have been obtained at follow-up visits since late 1987. Isolated elevations of this tumor marker also were not considered a treatment failure. Isolated elevations of acid phosphatase and/or prostate specific antigen did alert us to the need to closely watch for the development of local tumor relapse and/or distant metastases.

Survival curves were calculated by the actuarial method.¹⁵ The *actuarial method* does not require that patients be followed for a specified time interval, e.g., five years. Instead, this method uses all follow-up information, regardless of time interval, accumulated up to the closing date of the study. The *disease-specific* or *adjusted survival* is the proportion of the initial patient group who did not die of prostate cancer. Patients who die of other causes are treated on the survival curve as if they were last seen alive at the time of death. This is in contrast to *observed survival*, where all deaths are considered, regardless of the cause of death. The *disease-free survival* is the proportion of patients in the

Table 1
Staging of Prostate Cancer

Stage	Description
A	Occult carcinoma not clinically suspected and found incidentally at TURP or needle biopsy.
A ₁	Involvement of <5% of specimen, well to moderately differentiated.
A ₂	Involvement of ≥5% of specimen and/or poorly differentiated.
B	Palpable carcinoma confined to the prostate.
B ₁	Involvement less than 1 lobe.
B ₂	More extensive than B ₁ .
C	Extension beyond the prostate capsule.
C ₁	Involvement of periprostatic tissue.
C ₂	Extension into seminal vesicles.
D	Metastatic
D ₁	Metastases to pelvic lymph nodes.
D ₂	Distant metastases.

initial group who are alive without prostate cancer. Patients who develop a recurrence of tumor are treated on the survival curve as if they died at the time of their recurrence. Differences between groups were compared using the z-test.¹⁶

Complications were scored as mild, moderate, or severe. Mild complications were those which resolved completely with or without medical treatment, but did not require surgery. Moderate complications were symptoms of greater severity which did not completely resolve, but did not require surgery. Severe complications either required surgical correction or were fatal.

Results

Patient characteristics are described in table 2 (next page). The average age of our patients is higher than in most series,^{5,8-10} perhaps reflecting the demographics of the community (i.e., the presence of a large number of retirees), and the tendency for older patients to be referred for radiation therapy rather than undergo radical prostatectomy because of comorbidities. Fifty-eight of the 72 patients (81%) had either stage B or C disease. Only six patients (8%) had well-differentiated tumors. Seventy-one percent (51/72) had

Figure 1a.

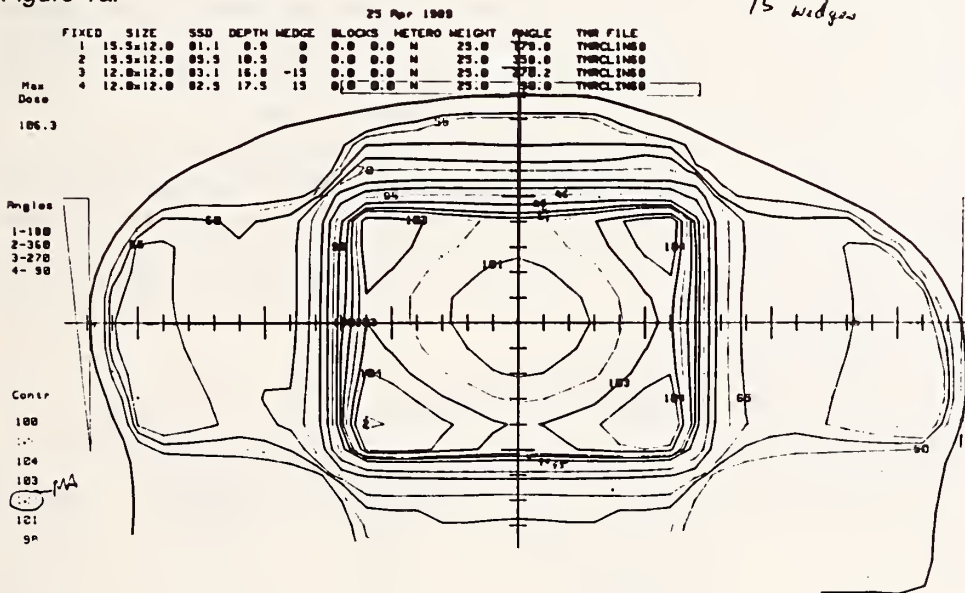
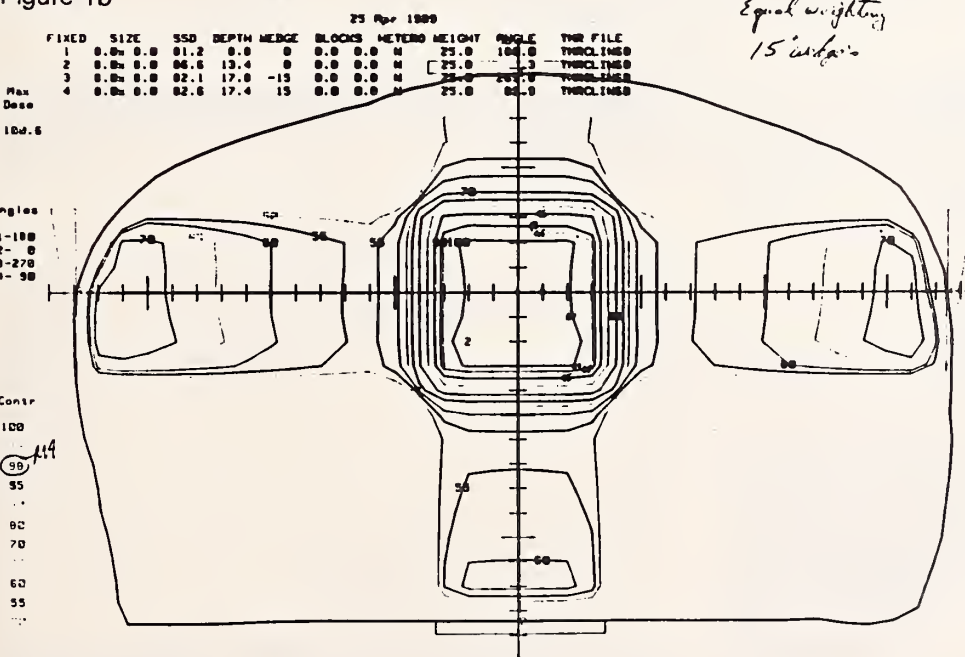


Figure 1. Examples of computerized isodose maps constructed prior to beginning irradiation. Each isodose line is numbered according to the percent of the dose, relative to 100%, delivered to the area inside the line. The dose is prescribed to the isodose line which best encompasses the tumor volume with the least amount of normal tissue receiving a high dose of radiation.

Figure 1b



1a. Isodose map of the dose distribution created by four fields (AP, PA, right and left lateral orientations) designed to irradiate the prostate, periprostatic tissues, seminal vesicles, and regional lymph nodes (hypogastric, obturator and external iliac nodes).

1b. Isodose map of the dose distribution created by four fields (same orientation as in 1a) designed to irradiate the prostate and periprostatic tissues only.

transurethral resection of the prostate (TURP) as part of their initial evaluation and treatment. Six patients (8%) received concurrent hormonal therapy. Four of the five patients undergoing lymphadenectomy were found to have tumor in the lymph nodes. Three additional patients were felt to have

pelvic nodal involvement on the basis of LAG findings. The pretreatment laboratory and radiographic findings are noted in table 3. No patient had evidence of metastatic disease. Twelve patients (17%) had isolated elevations of their acid phosphatase.

Table 2
Patient Characteristics

Age (years)		
Mean		70.2
Range		53-85
Clinical Stage		
	# Pts.	
A		5
B		30
C		28
D ₁		7
Unknown		2
Grade		
	# Pts.	
Well-differentiated		6
Moderately differentiated		33
Poorly differentiated		17
Unknown		16
Type of Biopsy*		
	# Pts.	
Perineal		33
TURP		51
Lymph node dissection		5
Concurrent Hormonal Therapy+		
	# Pts.	
Stage		
A		0
B		3
C		3
D ₁		0
Unknown		1
Dose (Gy)		
Stage B		
Range		63-68.4
Median		64.98
Stage C		
Range		64-70
Median		65.2
Followup (months)		
Minimum		1.5
Maximum		128
Mean		32.8

* More than one type of biopsy was performed in 11 individuals. If a patient had both a TURP and perineal biopsy, they are listed under both categories. Distribution by stage of those patients who had both procedures is as follows: A-1, B-7, C-4, D-0.

+ These patients received Diethylstilbestrol and/or orchiectomy in addition to radiation therapy.

Survival

The actuarial survival at five years for the entire group was 70% (figure 2). A total of 12 patients died, but only three died of prostate cancer. Thus the actuarial survival at five years, considering only deaths due to cancer, was 93% (figure 3).

The patterns of failure of the entire group are shown in table 4. A total of 15 patients relapsed. Four patients had local relapse only, one had simultaneous local and distant failures, and 10 patients relapsed at distant sites only. Again, adjusting for deaths due to intercurrent disease, the five-year actuarial disease-free survival and local control were 76% and 92%, respectively (figures 4 and 5).

Survival data are analyzed by clinical stage only for stages B and C, as there are insufficient patients for such an analysis of stage A or D disease. For stage B, the five-year

Table 3
Pretreatment Evaluation

	# Pts.		
	Not done	Negative	Positive
IVP	46	23	3
Lymphangiogram	54	15	3
Bone Scan	1	71	0
CT Scan	32	37	3
Acid Phosphatase	3*	57	12
Alkaline Phosphatase	54	16	2
Skeletal Survey	62	10	0
MRI	70	1	1

* 2 patients had acid phosphatases drawn but the results were unavailable.

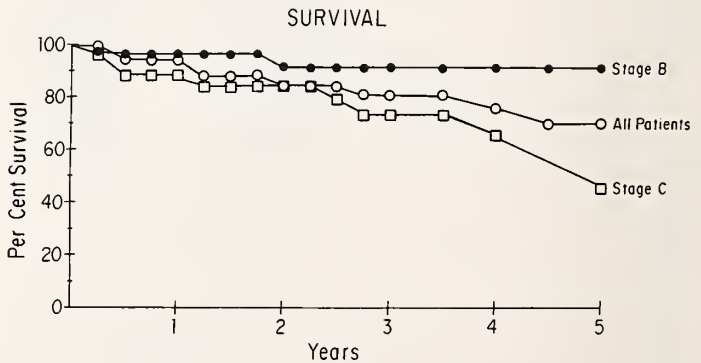


Figure 2. Actuarial survival after radiation therapy for carcinoma of the prostate; includes all causes of death.

actuarial survival, disease-specific survival, and disease-free survival were 91%, 100%, and 88%, respectively (figures 2-4). The corresponding figures for stage C were 46%, 69% and 71%, respectively (figures 2-4).

The patterns of failure for Stage B and C patients are depicted in table 5. In both groups, the predominant mode of failure was distant metastases, which comprised two of the three failures in stage B and seven of the 10 failures in stage C.



Figure 3. Actuarial survival adjusted to include only deaths from prostate cancer (disease-specific survival).

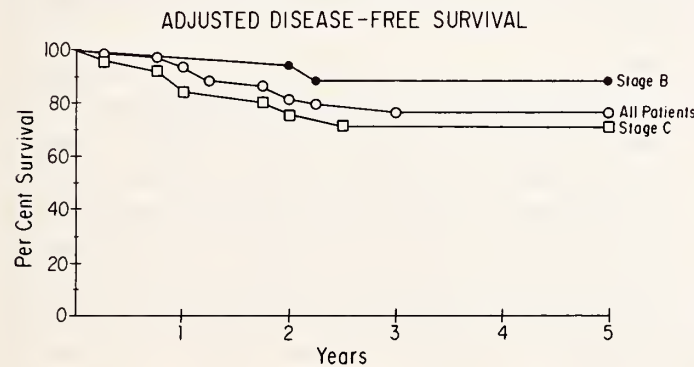


Figure 4. Actuarial disease-free survival adjusted to include only deaths from prostate cancer (adjusted disease-free survival).

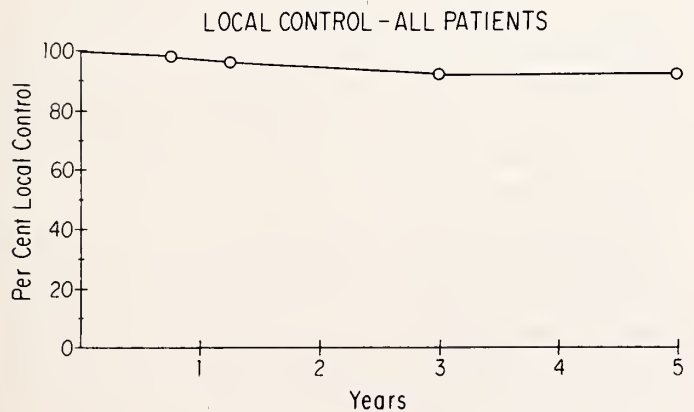


Figure 5. Actuarial local control after radiation therapy for prostate cancer.

Fewer stage B patients developed a local relapse as compared to those with stage C disease (3% vs. 15%, respectively; table 5). As shown in table 2, when comparing stages B and C, there was no difference in the medial dose of irradiation delivered as a function of tumor stage. This finding reconfirms the well-documented fact that larger tumors require higher doses of irradiation than do smaller tumors to control both with equal probability. We are now using higher doses (67 to 69 Gy) for Stage C tumors in an attempt to improve local control. Patients with evidence of gross nodal involvement on CT scan or LAG fared poorly. Of the six patients in whom these studies were positive, three have developed distant metastases and one of these three died of cancer.

Patients presenting with isolated elevated acid phosphatase also did not fare well. Of these 12 patients, four died of intercurrent disease. Of the remaining eight patients, one failed locally, one failed distantly, and one developed simultaneous local and distant relapse. Thus, only 5/12 (42%) are alive without disease, compared to 43/60 (72%) of the patients whose acid phosphatase was normal.

A difference was noted in the pattern of failure and survival according to whether the patients had a TURP or not. Patients who underwent TURP had a significantly worse overall disease-free survival compared to those patients who did not undergo TURP. Furthermore, TURP patients were significantly more likely to develop local relapse than were needle biopsy patients. TURP had no effect on overall survival, total failures, or on the development of distant metastases. One must consider these findings in light of the stage distribution of the TURP and needle biopsy groups

Table 4
Patterns of Failure

	# of Patients
With Local Relapse	4
With Local and Distant Relapse	1
With Distant Mets Only	10
Total	15

Table 5
Patterns of Failure - Stages B and C

	# Pts (%)	
	Stage B	Stage C
Local Relapse Only	1 (3%)	3 (11%)
Local and Distant	0	1 (4%)
Distant Mets Only	2 (7%)	6 (21%)
No Relapse	27 (90%)	18 (64%)
Total	30	28

Table 6
Effect of TURP*

	TURP 51	Needle Biopsy 33	P Value
Number of patients			
Clinical Stage			
A	5/51 (10%)	1/33 (3%)	
B	20/51 (39%)	17/33 (52%)	
C	18/51 (35%)	14/33 (42%)	
D ₁	6/51 (12%)	3/33 (3%)	
Unknown	2/51 (4%)	0	
Survival	42/51 (82%)	29/33 (88%)	NS
Disease-Free Survival	33/51 (65%)	26/33 (79%)	p<.05
Local Failure Alone	4 (8%)	0	p<.05
Distant Failure Alone	7 (14%)	3 (9%)	NS
Total Failures	12 (24%)	3 (9%)	NS

*Transurethral resection of the prostate

Table 7
Complications

	# Pts.	Comment
Impotence	7	
Incontinence	4	resolved completely without treatment
Chronic Cystitis	4	all mild
Chronic Proctitis	12	mild - 9 moderate - 2 severe - 1

(table 6). As expected, there were differences noted between the two groups. Nearly all of the stage A and D₁ patients underwent TURP. Stage B tumors comprised 52% of the needle biopsy group compared to only 39% of the TURP group. The two groups were similar in their numbers of stage C patients: TURP, 35%; Needle biopsy, 42%. Overall, the two groups were similar in their proportion of early stage (A and B) and late stage (C and D) patients.

Complications

Complications encountered are summarized in table 7. Two patients (2.8%) developed proctitis of moderate severity and one patient (1.4%) experienced a severe proctitis. All three of these complications were radiation proctitis. There were no moderate or severe genitourinary complications. It is not possible to assess the impact of irradiation on potency in our series because the information available is insufficient to determine this adequately.

Discussion

External beam radiotherapy is an excellent form of curative therapy for adenocarcinoma of the prostate. University centers have established benchmark standards for irradiation of carcinoma of the prostate with respect to survival, local control and complications.⁵⁻¹⁰

The data depicting survival, disease-free survival and local control for several major radiotherapy series are shown in table 8. The five year survival, disease-free survival and local control rates for Stage B disease are 80% to 100%, 72% to 100%, and 89% to 100%, respectively. For stage C disease, the corresponding figures are 60% to 76%, 40% to 59% and 66% to 88%, respectively. The results achieved at our institution fall within these ranges. Table 8 also demonstrates that our results are superior to those achieved in the radiotherapy arm of the Veterans Administration (VACURG) randomized trial comparing radiotherapy to radical prostatectomy.¹⁷ Thus we must agree with Hanks¹⁸ that the results of the radiotherapy arm of this trial for stage A and B tumors were more in line with what one would expect for radiotherapy of stage C prostate cancer. One should expect results comparable to those achieved in the present series and the others outlined in table 8.

The one unusual finding in our series was the impact of TURP on local control. This phenomenon has been previously reported,¹⁹ but the negative impact of TURP, if any, is usually described in terms of an increase in distant metastases.²⁰ Because the TURP and needle biopsy groups were fairly evenly distributed by tumor stage, we postulate that the finding of a negative impact of TURP on local control in our series may be a consequence of patients with larger tumors undergoing TURP while those patients with smaller tumors had needle biopsy of the prostate for diagnosis. Larger tumors are less likely to be controlled, and require higher doses of irradiation to achieve local control.²¹ Unfortunately, the American Urologic staging system for prostate cancer does not take tumor size into account. Thus, within each staging category, a wide range of tumor volumes may be present, making it virtually impossible to determine tumor size retrospectively. Therefore, our conclusion regarding the reason for a negative impact of TURP on local control must be considered speculative.

Complication rates following radical radiotherapy for prostate cancer are well described in the literature. Radiation cystitis and proctitis occur in 2% to 16% of patients irradiated for cure of their disease.^{6-8,22-24} These figures represent the more severe complications. Leg and/or genital edema occurs in less than 3% of patients not undergoing lymphadenectomy and in up to 10% of patients who have had a lymphadenectomy prior to irradiation.^{5,6,22,23,25} The low rate of complica-

Table 8
Results of Radiotherapy for Carcinoma of the Prostate

	% Surv*		% DFS*		%L.C.*		
	St B	St C	St B	St C	St B	St C	
Leibel et al (PCS) ¹¹	88	76	77	59	91	80	3 year actuarial data for survival & DFS
Bagshaw ⁵	80	60	—	—	—	—	
Neglia et al ¹⁰	100	67	100	57	100	86	Minimum 2 year followup. Only 4 pts with St B disease
Zagars et al ³⁵	93	—	90	—	97	—	5 year actuarial data
Hanks et al ³⁶	73	58	66	47	86	74	Update of Leibel series from PCS-5 year actuarial data
Harisiadis et al ⁶	87	58	—	—	—	—	5 year actuarial data
Aristizabal et al ⁷	82	60	—	—	95	88	5 year actuarial data
Rosen et al ⁹	77	61	68	53	88	85	5 year actuarial data
Perez et al ⁶	60	35-55	72	40-60	89	66	10 year, 5 year DFS. St C reported as C ₁ -C ₂
Paulson ¹⁷			55				80 month data
Present Series	100	69	88	71	97	89	5 year actuarial disease-specific survival & DFS

*Key: Surv = Survival
DFS = Disease-free survival
L.C. = Local Control

tions in our series (2.8% moderate and 1.4% severe) are well within the acceptable range established at the university centers.

It has been demonstrated that for malignancies requiring complex treatment approaches with technically difficult radiotherapy and/or surgery, or in situations where treatment guidelines are rapidly evolving, there is a benefit to treatment at a university cancer center. Examples of diseases in this category include medulloblastoma,²⁶ brain stem gliomas,²⁶ and rhabdomyosarcoma.²⁷ On the other hand, tumors that can be cured with surgical intervention alone, malignancies for which no effective curative treatment exists, and tumors requiring multimodality therapy but for which access to current protocol information and expert consultants is readily available, can be equally well treated at community hospitals.^{28,29} Examples of tumors in this category include Wilms' tumor,²⁷ cerebellar astrocytomas,²⁶ Grade I and II supratentorial astrocytomas,²⁶ ependymoma,²⁶ and glioblastoma multiforme.²⁶ The present series adds prostate cancer to the list of malignancies for which it has been demonstrated that patients can be equally well treated at either university cancer centers or community hospitals.

Currently, our approach to the management of patients with prostate cancer emphasizes a cooperative, multispecialty approach. The internist and family practitioner continue to play pivotal roles in screening patients using digital rectal examination. Once an abnormal prostate gland has been palpated, or symptoms such as hesitancy, frequency, hematuria, dribbling or nocturia have been detected, referral is made to a urologist for further evaluation. The urologist determines whether a biopsy is indicated and if so, what approach should be taken. If benign prostatic hypertrophy (BPH) is suspected and symptoms of bladder outlet obstruction are present, then TURP is performed. If malignancy is suspected, needle biopsy is performed. TURP may be performed if symptoms of bladder outlet obstruction are present.

Recently, we have used transrectal ultrasound to aid in the evaluation of the internal architecture of the prostate. Prostate cancer appears hypoechoic on transrectal ultrasound,³⁰ but a negative ultrasound does not eliminate the need for biopsy of a suspicious lesion. Ultrasound is also helpful in guiding the biopsy needle and in determining the size of the gland. Once the diagnosis of prostate cancer is confirmed, the pathologist provides a Gleason score, which has prognostic significance as noted above. Staging proceeds with serum acid phosphatase, serum alkaline phosphatase, prostate specific antigen, chest x-ray, and bone scan. Chest x-ray and bone scan are used to rule out metastatic disease. Alkaline phosphatase may be helpful in detecting bony metastases as well. The value of the acid phosphatase is that an elevated value suggests extension through the prostate capsule or metastases; however, a normal acid phosphatase does not rule out metastases. We have recently begun to obtain prostate specific antigens in patients before treatment. This is a useful marker to follow in that an elevated pretreatment value should return to the normal stage after either radical prostatectomy³¹ or irradiation.³² The failure of prostate specific antigen to normalize after either surgery or irradiation predicts an increased risk of tumor recurrence.^{31,32} As noted above, we have not yet accumulated enough data on our experience with prostate specific antigen to comment on it in this report.

Pre-treatment staging is completed with either a CT scan or an MRI to look for extension of tumor into the seminal vesicles, penetration of the prostate capsule and lymph node involvement.³⁰ We are not routinely using LAG to assess lymph nodes, although 18 patients in our series did undergo this test. The LAG does not visualize the internal iliac or obturator nodes, which are frequently involved with prostate cancer, and thus is falsely negative 20% to 40% of the time.^{33,34} We have replaced the LAG with either CT or MRI.

Once staging has been accomplished, treatment options are presented to the patient based on our criteria noted above.

Once treatment has been completed, patients are closely followed. They are examined every three months for two years, then every six months for three years, then once a year thereafter. Prostate specific antigen values are obtained at each visit because of their reported sensitivity as a marker of disease activity.^{31,32}

Thus it is clear that excellent survival and local control without excessive morbidity can be achieved in community hospitals using the radiotherapy techniques and dose guidelines for prostate cancer pioneered at the university centers. We urge all centers treating a significant number of patients to examine their results, not just for prostate cancer, but also for other common malignancies. This data will be valuable as a form of internal quality control, and such analyses may be required by the JCAH in the near future. □

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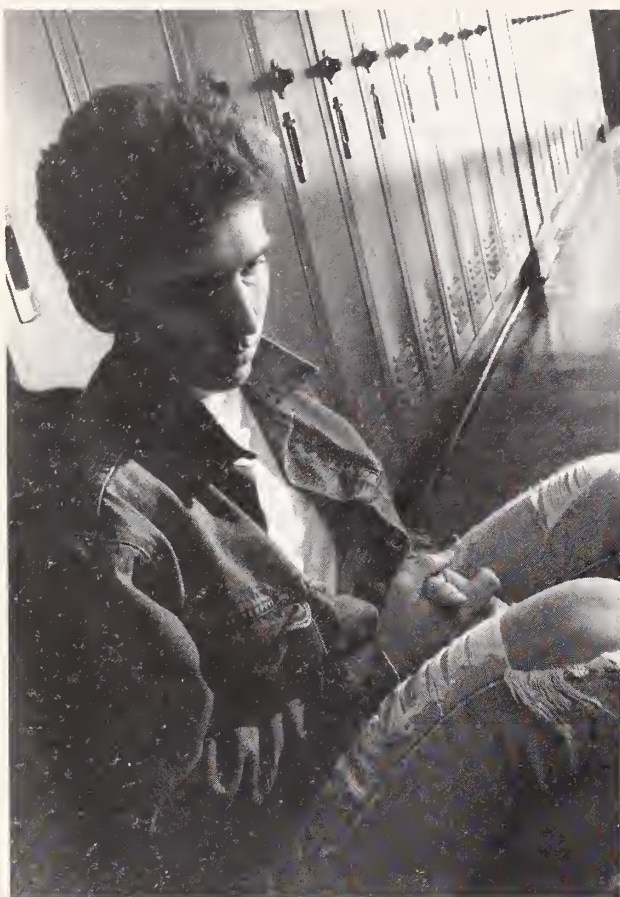
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NORTH CAROLINA MEDICAL SOCIETY

Health Watch

VOLUME 50 / NUMBER 10 / OCTOBER 1989

Sexually Transmitted Diseases

There is probably no cluster of diseases that combine discomfort and embarrassment with a potential for being fatal as do sexually transmitted diseases. There are many, many diseases that fall into this category, and the numbers of people with them are increasing all the time despite tremendous efforts by physicians and other public health authorities.

The reasons for the continuing rise in the incidence of STDs are many, including

- (1) the existence of a sexual revolution that may have started as long ago as 25 to 30 years;
- (2) oral contraceptives and contraceptive devices that eliminate the fear of pregnancy;
- (3) ignorance;
- (4) the fact that so many people with STDs are carriers without symptoms, often not knowing themselves that they have and are spreading a sexually transmitted disease; and
- (5) the tragic resistance of people with STDs who have symptoms but resist seeking treatment because they are embarrassed.

The consequences of untreated sexually transmitted diseases vary according to the specific STD in question, but they are by no means minor. One effect being discussed increasingly in North Carolina is the rising infant mortality

rate. Children of mothers with syphilis in particular are at risk of being stillborn or being born severely damaged. STDs are also being found to relate increasingly to certain cancers of both men and women, especially cervical cancer in women and cancer of the anus in both men and women.

The real tragedy of these facts is the treatability of most sexually transmitted diseases and the many methods available to prevent contracting them in the first place. While acquired immunodeficiency syndrome (AIDS) — the most serious new sexually transmitted disease of modern times —

***North Carolina's
rising infant mortality rate
is caused in part by
STDs, especially syphilis***

is still far from a cure, many other STDs can at least be treated and contained and others can be cured by appropriate medical treatment.

If you think you may have any of the symptoms of the diseases discussed in the following pages, give yourself a break: seek prompt medical attention.

From the North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611

Syphilis

About 400,000 people in the United States have syphilis, a sexually transmitted disease that was once a major medical problem but declined to the point of being uncommon in the 1950s, only to become rampant again today. Where once syphilis hit those in the 25 to 40 year old group it now strikes 15 to 24 year olds. It has especially increased in homosexual men and, we now know, makes them much more likely to acquire AIDS, the deadliest sexually transmitted disease.

Acquired Syphilis

There are two classes of syphilis: acquired and congenital. Acquired syphilis is an infection that is passed from person to person by close bodily contact, usually sexual contact. In its *earliest stage* it causes sores, called chancres, at the point of entry into the body: penis, anus or rectum in men; vulva, cervix or perineum in women. Chancres can also appear in the mouth and throat and on the fingers.

The big problem is that these chancres are painless or cause such slight symptoms that nothing is done about them. They then disappear in about two weeks and the primary stage is over. Next comes the *secondary stage*, six to eight weeks later, when flu-like symptoms and a skin rash appear, which may go away without treatment but may also reappear, the rash especially on the palms and soles. Glands may also swell and some other, more severe problems can occur during this stage, including headache, deafness and meningitis in a few patients.

Next comes the stage known as *latent* during which the infected person does not transmit the disease except for pregnant women who can still pass it on to their fetuses. This stage can last from a few years to the rest of the person's life. Some people never experience another outbreak of symptoms but others may proceed to late syphilis which may also have serious consequences.

Late syphilis can be benign — once again affecting mostly the skin — or it may affect the heart and blood vessels or the nervous system. These body systems may not show the effects of the initial disease until as long as ten to 25 years later. Sometimes it is difficult or impossible to make the link between a brief illness a quarter of the century ago with the very serious ailments found in an affected patient.

What can be done about syphilis? The fact is that syphilis, once diagnosed, is very easily treated with penicillin during all stages of the disease. It's essential for patients to take their medicine as told and, to prevent spreading the disease, they must refrain from sexual contact while being treated. They must also give public health authorities the names of all their recent sexual partners in order for them to be notified and treated as well. Patients must also continue to be checked for two years beyond the initial treatment to assure complete cure.

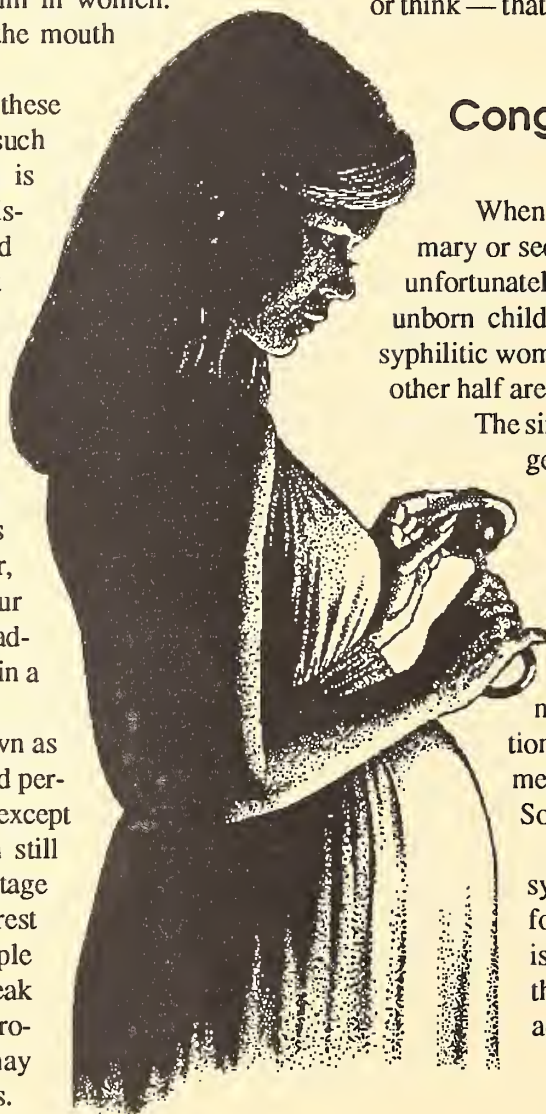
If you have any of the symptoms of syphilis and know — or think — that you are at risk, see your doctor immediately.

Congenital Syphilis

When a woman with untreated syphilis in the primary or secondary stage becomes pregnant, she has an unfortunately high chance of passing the disease on to her unborn child. Fully one half of the children of these syphilitic women are stillborn or die shortly after birth; the other half are born with congenital syphilis.

The single most important thing to know about congenital syphilis is that it need not occur. A woman with syphilis needs only to be treated for her disease, even if she is already pregnant, in order to be cured. If the treatment occurs early enough in the pregnancy the chances are the fetus will be cured as well. Children born with congenital syphilis and not treated may fail to grow, may have eruptions on the skin of their palms and soles, may be mentally retarded, may develop meningitis. Some may waste and then die.

With treatment, children with congenital syphilis may turn out all right. The treatment for them is penicillin, as it is for adults, and it is important that they be followed closely by their physicians for many years, even into adulthood.



Gonorrhea

Probably three million Americans become infected with gonorrhea each year. Unlike syphilis, gonorrhea's symptoms are obvious and difficult to ignore.

Men with gonorrhea first notice mild discomfort in the urethra, which runs from the bladder through the penis. Several hours later they experience an urgent, frequent need to urinate and they produce a purulent (pus-filled) discharge. Women's symptoms are not much different from those of men, although they occur up to three weeks after exposure as opposed to about two weeks in men.

Women and homosexual men can also contract gonorrhea of the rectum, which has fewer noticeable symptoms and therefore goes untreated more often.

Gonorrhea can cause sterility in both sexes, which makes it even more important that it be diagnosed and treated as early as possible. While it is true that every urinary tract infection is not caused by a sexually transmitted disease, the wise person will have any such possible infection attended to by a physician as soon as there are symptoms.

Your doctor will diagnose gonorrhea using a specimen of the discharge. Once the diagnosis is made, one of several equally effective medicines may be prescribed to treat the disease. It's essential to have followup tests to be certain the gonorrhea is cured because there are some strains that are beginning to become resistant to the medications that have cured gonorrhea in the past.

Chlamydia

The symptoms caused by chlamydia or ureaplasma infections are quite similar to those of gonorrhea. Besides affecting the urethra in men, these STDs can also be found in the pharynx (throat) and rectum if the patient has had oral or rectal sexual contact. In women the symptoms are more difficult to detect, but include vaginal discharge and pelvic pain.

Diagnosis and treatment are quite simple and effective once the affected person has sought his or her physician's help. Relapses after treatment are not uncommon, but continued medical care eventually results in a cure.

Most untreated people with these particular STDs will find that their symptoms disappear, usually in about a month, but the consequences of going without treatment are serious. Women face pain, infertility and the possibility of an ectopic (tubal) pregnancy. Men may have chronic problems with their urinary tract.

Human Papilloma Viruses

Several sexually transmitted diseases have their roots in human papilloma viruses. The one most often heard about is genital warts, the incidence of which has increased extremely quickly in the last decade and which has implications as far as future cancers are concerned.

Genital warts look like small, pink, wet warts. As the name implies, they are found in the genital area in both men and women and in the anus and rectum in homosexual men. The warts often appear in clumps, in which case they look like cauliflower. They must be removed, either by heat or by freezing or by surgical excision, and all known sexual contacts of the patient must be traced and treated as well.

The need for patients to be followed up has become more important in recent years as physicians have noted that women with human papilloma virus infections have a higher than normal chance of contracting certain cancers, especially cervical cancer. Women who have had genital warts need to be seen by their doctors at least once a year until or unless told otherwise.

Proctitis (inflammation of the rectum and anus) can also come from the human papilloma virus, although it may also have other causes, including herpes simplex virus, primary and secondary syphilis, gonococcus, or chlamydia. It appears in women and in homosexual men. Patients complain of pain or soreness in the rectum and their physicians must test to find the exact cause in order to treat their patients with the most appropriate drug or, when necessary, with surgery.

Herpes

Genital herpes is an infection of the skin around the genitals that is spread fairly easily by sexual contact. The symptoms of herpes include painful widespread sores in the genital area following a period of itching and soreness. If the infection is not treated, the sores can recur, grow together and cause an even more painful ulcer. More serious symptoms may follow, including fever, a general feeling of illness and difficulty urinating and walking.

Genital herpes can have extremely serious complications, including impotence, inability to urinate and meningitis. The usual complication is an unfortunate tendency for genital herpes to come back again and again. Later recurrences are milder than the first attack and are usually limited to just one side of the body.

There is good treatment available for herpes using the drug acyclovir, but recurrences sometimes happen to treated people as well as those who do not seek medical attention. The best advice for those who fear that their symptoms may mean that they have genital herpes is to see their doctor immediately in order to give themselves the best chance for a successful course of treatment and a possible cure.

Acquired Immunodeficiency Syndrome

AIDS is the most frightening sexually transmitted disease of modern times. It is considered to be a uniformly fatal illness although there are some patients who have lived several years with both the diagnosis and the disease.

AIDS started in homosexual men in this country but has passed on to heterosexuals in recent years because of its spread through prostitutes and intravenous drug users. In years past there was some concern about its transmission in blood and blood products also, especially during transfusions, but blood bankers have taken steps to test all blood for the disease and to discard any that is infected.

What AIDS does to the person infected is break down the body's defense system so that any infection that happens to enter the body is more difficult or impossible to resist. People with AIDS come down with skin diseases, with a rare kind of pneumonia and often with whatever happens to exist in the community. Because they have impaired defenses against disease, even minor illnesses become much more serious in people with AIDS.

Unlike most other sexually transmitted diseases, the earliest symptoms of AIDS are more generalized and not limited to the genital area. Some patients with AIDS have a flu-like illness with fever, swollen glands and aching joints. Others, though, have no such symptoms and may carry and spread the disease among their sexual contacts without knowing it for years. One of the biggest problems with AIDS is this sometimes long period (up to six years) when patients are symptom-free and terribly contagious.

AIDS can take one of many courses, some relatively mild succeeded by increasingly severe illnesses, and others serious and stormy right from the start. There is one approved treatment, AZT, which has been found to be effective even in those who are symptom-free; these patients seem to take longer between time of infection and first symptoms. Newer drug treatments are being tested in patients with AIDS now and some appear to have early positive results.

The populations clearly at risk of getting AIDS are homosexual men, intravenous drug users, prostitutes, the sex partners of these three groups, and the unborn children of infected women. It makes sense for everyone who falls into any of these categories to be tested to see whether they have been exposed to the disease. Those who test positive must then abstain from sex entirely or take the necessary precautions to protect their sexual contacts from the disease.

Get Help

The single most important message for you to receive and heed about sexually transmitted diseases is that they are treatable. If you have any of the symptoms of any of the STDs discussed in this Health Watch, your first step should be to contact your physician for a test. A delay puts you and your sexual partners at risk of more serious illness and of passing the diseases on to still other people, including unborn children.

If you feel certain that you are free of any sexually transmitted disease, take the precautions that will assure that you remain healthy. □

1990

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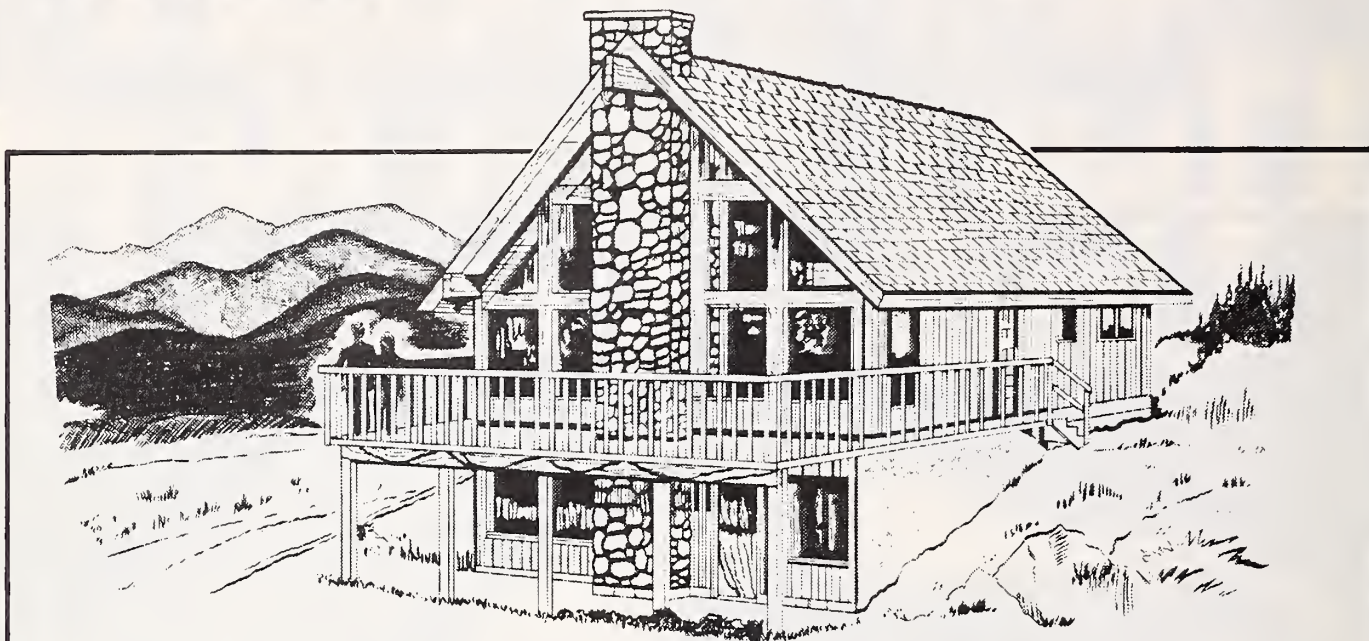
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The Many Expressions of Sweet Thing

Claude A. Frazier, M.D.

I have written a number of articles and books. Among them *Coping with Food Allergy* (Times Publishing) and *Insect Allergy* (Oklahoma Press). None has met such an enthusiastic reception as my article on Sweet Thing in the *North Carolina Medical Journal*, September, 1986 (47:413-4).

For the first time I was told, "You are a great writer," by other writers, physicians and laymen. I don't know why such a response. One doctor said, "I know more about you from the article ..."; perhaps this is a factor in the response. Doctors have written to me, "Tell me more about Sweet Thing." My patients on their return visits ask me the same question. There is always something new to tell about Sweet Thing.

This is a continuing love story about a cat and his master (servant).

Sweet Thing has many varied facial expressions. So many, it amazes me. He can say more with his facial expressions than most people can say in words ...

Superior look: This is his outstanding attitude and expression. He acts (not acting) as if he is not dependent on me for anything—even though I give him food and let him in and out of the house anytime, at all hours of the day and night. I exist to do his bidding. I don't mind serving him. Maybe that is what love is all about.



Editor's Note: I generally decline to publish material that is not directly tied to the scientific, cultural, social or economic aspects of medicine. When I listen to Claude Frazier, and watch the light in my wife's eyes as she looks at our three dogs, I am convinced that the quiet enjoyment the human-pet bond creates is an effective medication. So once more I go with Frazier and Sweet Thing.

From Doctors Park—Bldg. 4, Asheville 28801.

Innocent look: When Sweet Thing is asleep, his look is of complete innocence. He looks as if an evil or unkind thought never entered his head. He sleeps with the sleep of a hypocrite and with a completely clear conscience—because he has no conscience.

Eager, anticipatory look: He has this look when he goes to the door to be let outside. Even late at night when he is not supposed to go out, he gives this look. When he stands at the door with his upturned face of eager anticipation, I have difficulty restraining myself from letting him out.

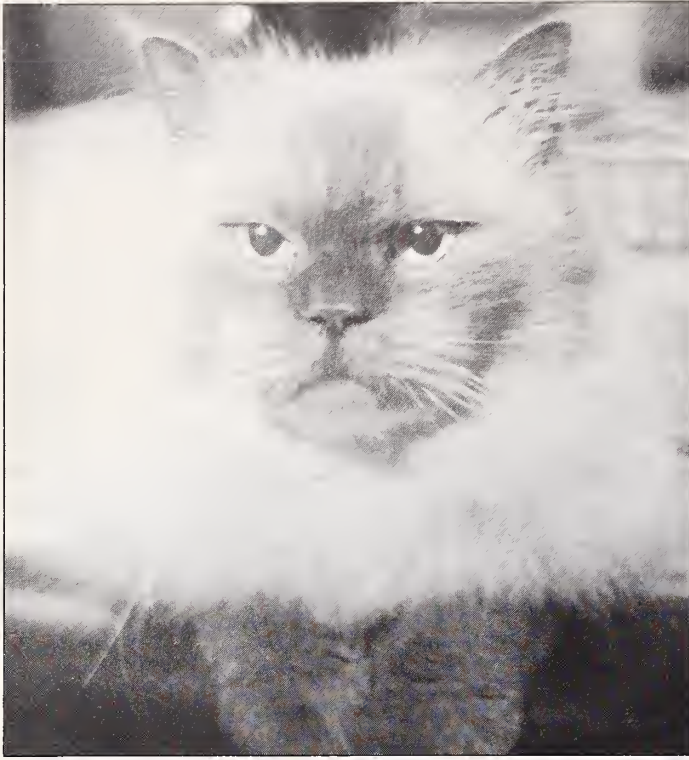
Confident look: When he is with me, there is complete confidence. He knows that if he wants to go out, I will let him go out—even at four a.m. He knows that I will pet him

anytime he wants to be petted. He has an obedient servant (me). He is a gourmet eater and very particular and if he doesn't like a particular kind of cat food, he will back off from it and look at me. The look says, "Buddy, get something else, this isn't any good." So I march into the kitchen and search high and low until I find another gourmet food for him. He is

confident that I will get another food "His Highness" loves even if I have to make a trip to the grocery store.

If he is out late, I will stay up until he comes in, often having to open the door and scream, "Sweet Thing!" When he is ready to come in, he makes his grand entrance, tail erect.

He is confident that I will not spank him, no matter what he does. For example, he came into the house all wet and covered with leaves. It had been raining. He got on the bed on my clean clothes that I had laid out to wear to church. I had brushed him earlier and now had to brush him again. (Brushing is not one of Sweet Thing's favorite activities.) He knew I would not spank him but I will admit I did brush him with a little more enthusiasm than usual because of what he had done to my bed and clothes.



Disgusted look: When it starts getting late and I am sleepy and want to go to bed, I will start yelling for Sweet Thing to come in. After I have screamed and yelled, and I do mean yelled, he will finally come to the door and look up at me with this disgusted look. It says, "Keep it down, this is a refined neighborhood! After all, the neighbors may think 'Sweet Thing' is a woman. They may even think you are a wife-beater or that you are yelling for your girlfriend. I'm here, so just calm down." He then makes his grand entrance, the one I spoke about earlier. I'm safe; I don't have a wife or a girlfriend.

He gave me another disgusted look when a friend of mine brought a beautiful red Persian kitten to visit Sweet Thing. He looked at the kitten and then at me disgustedly ("Buddy, your taste has gone to the dogs"), and walked out of the room.

Starved look: I give Sweet Thing a can of salmon for breakfast each morning. The vet says he is to eat this only once a day. The remainder of the day, he is to eat dry food. It seems Sweet Thing knows the canned salmon is stored on the top of the refrigerator in the bedroom. (Of course he knows.) When he comes in late at night, he will stand in front of this refrigerator, right beneath the can of salmon with his "starved look." That look says, "I am a starved cat, just skin and bones," not the fat cat that he really is. Then comes the piteous meow ... "Please, please feed me, I'm soooooo hungry." Again, it is difficult to resist.

Confrontation look: At four a.m., if I don't get up to let Sweet Thing out the minute he thinks I should, he sits on the edge of the bed ready to leap to the top of the television set. This is an attention getter for him when all else fails. He knows (I

guess) that I have my contact lenses, solution and mirror on top of the TV set and that I do not want them knocked off. When he gets on the edge of the bed and crouches to leap, I know I have about five seconds to leap from the bed. (Who leaps out of bed at four a.m.?) I will yell, "Don't!" It is hard to play "chicken or dare" at this early hour. If he fails to get me up in the amount of time he has allowed me, he has been known to jump and land behind the television set. Of course, all of the above mentioned items have also landed on the floor. When I go and pick him up, he looks up innocently, "What happened?" His look is the same as the man who fell out of a second story window. A crowd gathers and someone asks him, "What happened?" The man answers, "I don't know. I just got here myself."

Do-you-love-me look: He seems to want to be reassured that I love him.

Sometimes when I am lying on the bed, he will come up to me to be petted. He will look up with that "Do you love me?" look and of course, I put him on my chest and say, "I love you." Sometimes I tell him, "Buddy, ain't no woman coming between you and me." I have had women tell me, "That cat is mean." My staff tell me that he is probably jealous.

Catch-me-if-you-can look: Sweet Thing runs down the hall, stops and looks over his shoulder. He is challenging me to catch him. The game he loves is "hide and seek." He will run and hide behind the couch or a chair. I go after him and say, "I'm going to catch me a fat cat!" His tail will twitch when I get near him and he will dart off to find another hiding place. He doesn't realize that he is not completely hidden. His tail is exposed. When he decides to stop playing, he will suddenly stop in the middle of the floor with his expression that says, "I'm tired of playing this childish game with you." I hope he never tires of playing hide and seek with me—just two ol' cats having fun.

Angered look: Even though he is a sweet thing most of the



time, he occasionally becomes angry. This occurs when I brush him. He also does not like to be disturbed when he is sleeping. He is like a grouchy old senator when he is awakened. He doesn't need a "Do Not Disturb" sign. He gives me the angry look instead.

High five: Sometimes when I walk him in the hall, he will strike out at me with his paw. His claws are not extended so he doesn't scratch me. It is almost like a "high five" sign.

Frightened look: Once he was standing inside the door and saw a dog running across the lawn. He spun around and fled up the attic steps. Once on a very cold and stormy night, he didn't come in when I called him. I called many times. By then I was frightened. I prayed. I cried. I called the Biltmore Forest Police station which is almost next door to me. He said, "Call again if he doesn't come in." I called again at one a.m. Two policemen came. He still couldn't be found. I said, "He's my buddy and if he is alive, he will let me know, let's be quiet."

Finally, a soft meow from the roof—a frightened cat. The policemen obtained a ladder. He wouldn't let them near him. I backed my car out of the garage for him to jump down on. I asked the policemen to go inside the garage and leave me alone. I knew Sweet Thing trusted me. Sweet Thing slowly came over to the edge of the roof. I kept coaxing him. I pleaded, "Come on and jump, buddy, jump." He hesitated and then he jumped. I put him on my shoulder and petted him so hard, as I walked back to the bedroom, we both purred. I put him on my shoulder, rejoicing, exactly as the Shepherd in Luke did when he found the lost sheep; I understand this parable so much better than I did before.

Sweet Thing makes a good "watch cat" with his frightened look. When he hears someone at the door, he stands up, perks up his ears and his pupils dilate.

Contented look: When I pet Sweet Thing, his expression is, "This is life!" He will purr and half close his eyes. He has this same look when he is asleep. He belongs to the "me" generation. If anything does not bring contentment or pleasure, forget it!

I-missed-you look: When I return from a trip, he will come to the door and walk down the hall with me to my chair. I sit down. He gives a piteous cry. He then stands on my chest and looks into my eyes. We are both choked up. He says with his expression, "I missed you. I needed you. I love you. I didn't think you were coming back." Then he settles on my chest and lets me pet him longer than usual. I am somebody for an hour and then it's back to "business as usual"—a king (him), a servant (me). When he is being petted, he demands 100% attention. If I pick up the telephone or newspaper, he immediately jumps on my chest.

Curiosity: Curiosity killed the cat. It hasn't killed Sweet Thing yet but he has gotten into some difficult situations.

Once he got on top of a bookshelf and it was too high for him to jump down. he looked pleadingly at me, "Help me down and I won't jump up here anymore." Another time, he slipped into a drawer of a chest. I had searched for him for a long time and finally at wit's end, I called the police. They helped search for him, using their flashlight. They looked in the basement and in the attic and finally came in the bedroom. The policeman was shining the light around and happened to direct in on the drawer. There lay Sweet Thing, fast asleep, not perturbed at all.

I rarely open the door to my ex-wife's bedroom mainly because it hurts to go in there. So, naturally, Sweet Thing is curious about this room. He tries to slip through the door each and every chance he gets. Once a visitor came by to see him but he was nowhere to be found and didn't come when I called. I said to the visitor, "Watch this." I cracked the door, it made its usual noise. I heard him coming down out of the attic, bouncing four steps at a time. He came skidding around the corner down the hall and screeched to a halt at this bedroom door. He look up and saw me with his usual innocent expression, "Funny, us meeting here like this."

Faith look: Part of what I usually consider confidence from Sweet Thing could be more like faith. He knows that, if he isn't in the bedroom, I know he is at the door, waiting to be let outside. He has faith I will take good care of him.

The greatest honor that Sweet Thing can bestow on anyone is the honor he bestows on me—only me. He lets me pet, feed and care for "His Highness, King of the Cats." To me, when he climbs on my chest, he is telling me he loves me and trusts me. I appreciate this honor. □



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CHD, MI, & I

The Story of a 57-Year Love-Hate Relationship

John B. Graham, M.D.

I have had a strong personal interest in CHD (Coronary Heart Disease) and MI (Myocardial Infarction) since I was 14. My father died suddenly that year, aged 41, with ventricular fibrillation (I now believe) following mild MI which our GP did not recognize. (He had been given a clean bill of health on the morning of his death). Shortly after his death I learned that his father had also had a fatal "heart attack" at age 44 while recovering from pneumonia.¹ These events led me to believe that I was also destined to die of coronary disease around age 40.² This conclusion did to me what Dr. Samuel Johnson believed the threat of hanging does to felons. It "concentrated my mind mightily" leading me to go to medical school, minimize dietary fat, remain physically active, and attempt to make whatever mark I could before I reached 40. Looking back from the vantage points of age 71 and recently successful passage of a "stress test," I can see how naïve I was.

My professor during residency was William Dock, a quondam internist who masqueraded successfully as a pathologist for a number of years. He was very imaginative and enjoyed espousing unconventional ideas. We had many interesting conversations at tea about the nature of atherosclerosis. I had read about the experimental work of Anitschow who produced atherosclerosis in rabbits by feeding cholesterol, and we wondered why this experiment did not work in dogs. Dock, who possessed an abundance and variety of unusual information, suggested that cholesterolosis of the gall bladder was always present in dogs and probably meant that they had excellent systems for excreting cholesterol. Perhaps this made them immune to experimental dietary atherosclerosis. Who knows?

When I returned from WW II and settled in Chapel Hill, I began working on blood coagulation with Kenneth Brinkhous and did not think much about atherosclerosis until I was recruited to do so by a group at Duke. I had established a human genetics research program in Chapel Hill which Duke lacked and they needed a genetics collaborator.

Dr. Graham is Distinguished Professor of Pathology, the University of North Carolina, Chapel Hill 27599.

William Harlan and Harvey Estes had perceived an opportunity to examine the genetics of elevated serum cholesterol, and I agreed to help by recruiting a premedical student to do the field work.³ My contribution was to organize the collection of blood samples and family data; the Duke group did the clinical studies and lipid analysis, and we analyzed and published the data jointly. The family we studied had "classic hypercholesterolemia" and consisted of 1691 members, most still living. We collected information on 659 persons, and the results and conclusions were published as a monograph in *Medicine* (1966;45:77-110).

We began by defining rigorously—i.e., mathematically—the range of normal for serum cholesterol. The regression of cholesterol on age was curvilinear and different in the two sexes, and we found that "classic hypercholesterolemia" was inherited as a simple autosomal dominant trait. This was in the pre-Brown and Goldstein era, and many of the then current authorities in the field found this conclusion unpalatable. I have always thought that they felt this way because they were therapists who feared that a genetic trait could not be treated satisfactorily.

We observed precocious CHD among the family members with elevated serum cholesterol, but we also found family members in the eighth decade without CHD who had elevated cholesterol. Our simple-minded conclusion was that elevation of serum cholesterol was significantly related to the development of CHD but was not determinative. It was obvious that other factors were also involved.

I observed privately that some affected persons who survived into old age were unconcerned about eating eggs. This led me to conclude that dietary cholesterol had little to do with the progression of CHD, and to suspect that the promoters of abstention from eggs as a public health measure against CHD might be acting on bad theory, on a "fallacy of misplaced concreteness." Subsequent basic research in cell biology and my own life are consistent with the view that moderate egg-eating is not a cryptic form of suicide. Harlan departed for presumably greener pastures soon after our work was published, and my research career on lipids and CHD came to an abrupt halt.

Today, 25 years later, a Nobel Prize has been awarded (1985) to Michael Brown and Joseph Goldstein for work on the atherosclerosis problem. They have shown that “classic hypercholesterolemia” is due to mutation of a gene coding for the Low Density Lipoprotein (LDL) receptor. When the gene is mutant, LDL receptors are either absent or poorly functional; LDL is not absorbed from plasma into cells in the usual amounts, and the negative feedback on cell synthesis by the cholesterol in the cell freed from the absorbed LDL is reduced. The result is over-production of cholesterol in cells and an increase in serum LDL. The increased level of LDL leads to increased risk of CHD.

Cholesterol does not circulate free in plasma but is embedded in the core of LDL particles surrounded by molecules of Apo B-100 (and in chylomicrons by Apo B-48 and Apo E). Changes in LDL level can be followed by measuring either Apo B-100 or cholesterol, but cholesterol is an easier laboratory procedure and is generally used. Cholesterol levels are reported to the charts, which is unfortunate, because it suggests to the uninformed that cholesterol is the toxic agent. But it is really LDL particles, consisting of cholesterol and apoprotein, which undergo chemical change (oxidation?) prior to or after entering the arterial wall, are phagocytosed locally, and result in the lesions that we refer to as atherosclerosis.⁴ The cholesterol in the plaque may be primarily a marker indicating that altered LDL had been absorbed in abnormal amounts.⁵

The Steinberg Paper

This essay was provoked by the Editor of the *North Carolina Medical Journal*, who called my attention to an interesting article by Daniel Steinberg and his colleagues in the *New England Journal of Medicine*.⁴ The authors are acknowledged experts in the field, and the article is well worth reading. It describes the chemistry and physiology of lipoproteins in plasma and the cell and their relationship to the development of the atherosclerotic plaque. It makes the important point that altered LDL is probably the toxic agent. But what is “LDL”?

The answer is as slippery as an eel. Sometimes LDL is a mixture of: Apo B, fatty acids and cholesterol. At other times, it is a protein, e.g., the ligand of the LDL receptor. When measured immunologically (see note 7) LDL is an antigen, Apo B, a protein whose concentration is proportional to the height of antigen:antibody “rockets” observed in immunoelectrophoresis. Clinically, LDL is a mathematical abstraction reported by the hospital laboratory to the patient’s

chart (see note 5). I realize that research is difficult in this field, but the argument would be more comprehensible if the experts would define their entities more precisely and stick to their definitions.

A more significant defect of the paper, in my opinion, is that it is only a partial account of the pathogenesis of CHD, suggesting subliminally by its emphasis that only the lipoproteins matter. This may not be entirely fair to the authors, since the pathogenesis of CHD was not the main thrust of their paper. Nevertheless, CHD is the most important complication of atherosclerosis and the main reason for our concern about it. To get a broader view of basic science studies in atherosclerosis research, it is instructive to examine the work of the molecular biologists. They are currently doing astonishing experiments.^{6,9}

The real complexity of the pathogenesis of CHD is indicated in figure 1.¹⁰ It suggests that CHD is the result of many things in addition to altered cell receptors and serum lipid levels. The figure shows three major groups of pathogenetic factors; two are genetic and one is environmental. The classification is valid, but I think it is incomplete in detail; there are probably other influences on CHD yet to be discovered. What the figure says in essence is that the development of CHD is a vector whose speed and extent are the function of many variables.¹¹

But some genes obviously have major effects, heterozygosity and, especially, homozygosity having a strong impact on the likelihood of CHD. The Apo (a) gene is an example. When Apo (a) level reaches 30 mg/dl (in 20% of the population) the relative risk of CHD doubles. And there is additivity: when Apo (a) and LDL are elevated the risk goes up five-fold.¹² LDL receptor disease, hypertriglyceridemia, and several of the rarer lipidoses are other phenotypes produced by this type of gene.

The figure refers to another group of genes as “Background Genes.” Their genetic bases are often poorly defined, but such common problems as obesity, diabetes and hyper-

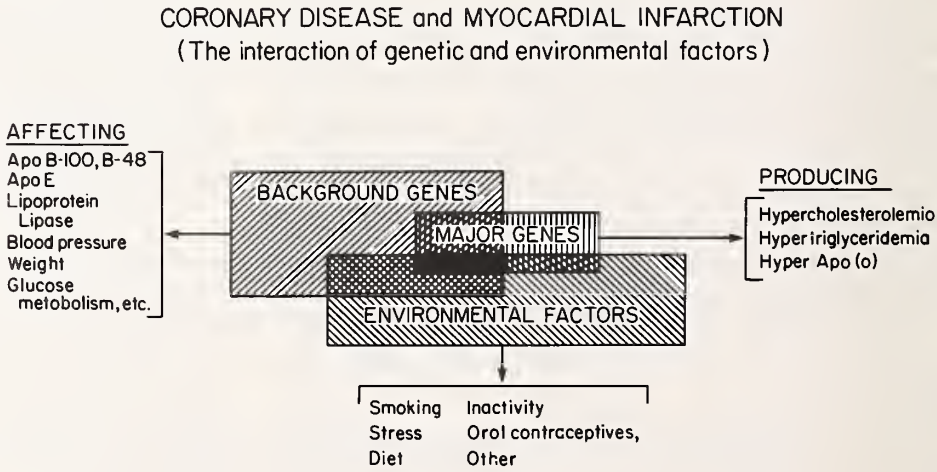


Figure 1. The risk factors for CHD are classified into three groups. The groups are shown as overlapping boxes, to imply that an individual might possess only one group, or any one of three pairs of groups, or all three (black box). Obviously the risk of CHD increases with the number of deleterious genetic and/or environmental factors.

tension have genetic components, and each is an important "risk factor" in CHD. Any of these genes can mutate, and there are often multiple alleles at a single genetic locus, some causing disease, others not. Levels of other lipid components are also under genetic control and may be involved in the pathogenesis of CHD in some complex, interactive fashion. Perhaps synergism between the lipids plays a role, a process geneticists call "epistasis" when gene products are involved.

Then there are the environmental factors shown at the bottom. The artwork implies that the final result in an individual depends on the interactions of all these factors, the risk of CHD increasing as the deleterious factors concatenate. A person who fits into the "black box" in the center of the figure has three strikes against him and is a very poor prospect for longevity. The figure also suggests why an individual might have LDL receptor disease yet not develop CHD. (His other genes are of a better sort, and he has managed to control environmental risk factors.)

It also explains why a "couch potato" who drinks beer, smokes, and eats pizza and potato chips during long hours of TV watching, and who is taking oral contraceptives to find out what it means to be a woman while undergoing the stress of deciding whether to have a sex-change operation, may be at great risk for CHD even though he has inherited sterling genes from his parents.

Panaceas

The "take home" message I offer is this. We should be skeptical and carefully examine the products of the pharmaceutical industry as successive panaceas for CHD are announced. Remember that they are in business to make a profit. Any drug that interferes with cell metabolism in order to slow the progression of atherosclerosis may have unexpected and disastrous side effects. The MER-29 debacle is a case in point.

This sad tale from the early 1960s resulted from the apparently plausible idea that the cholesterol of serum was a toxic substance, and that the progression of atherosclerosis could be controlled by reducing its level. A drug was introduced which suppressed cholesterol synthesis and successfully reduced serum cholesterol level. But what had not been appreciated was that cholesterol is essential for the normal function of all cells. Many kinds of damage resulted from the use of MER-29, including male sterility from cessation of sperm production, cataracts, etc. The drug company that thought it had discovered Ft. Knox was bankrupted by lawsuits, and its residual assets became the property of a competitor. □

(Sic Transit Gloria Mundi)

Editor's Note

On a more personal note, in my correspondence with John Graham about his paper on cholesterol, I told him that I needed a wise man to substitute for my former colleague Walsh McDermott. I informed him that he was elected, and he replied as follows:

I am honored that you have placed me in Walsh McDermott's class. He taught me what little I know about "lues" and might have had me ejected from Cornell but didn't. When I was a senior, I spent two weeks in the Medicine "L" clinic of the New York Hospital, Walsh's then satrapy. I did physicals and gave i.v. medication (and hepatitis B I now suspect) to his not-so-innocent patients.

Walsh checked my results one day and ticked me off because I had missed a faint, high-pitched diastolic murmur in the aortic area. I listened and listened but

heard nothing. He then suggested (or implied) that I was a careless or less than competent auscultator.

I became angry and accused him of merely hearing what he expected to hear. I forget how we ended, but I think we both wisely backed off.

I do remember twice afterwards missing the diagnosis of syphilis, probably because I had repressed my memories of Medicine "L." One instance was on the Cornell final exam when I did not include it in the differential of a man with generalized lymphadenopathy. The other occasion was when my own medical corpsman came back from leave with a chancre on his chin and cervical adenopathy.

Walsh had a distinguished career at Cornell, being the most influential person there in his day. He must have died without my knowledge because he is no longer listed in *Who's Who*.

Thanks again for the compliment.

Notes

- 1 My mother died at 84 of congestive heart failure, the result of an MI at 76.
- 2 The sexist bias of this "cracker barrel" genetic conclusion had not occurred to me until I began writing this essay. Mothers contribute half of the genes in each generation and might readily compensate for (or aggravate) the

inheritance of "bad" paternal genes.

- 3 Harold L. Tarleton, who went to medical school later and practices in West End, NC.
- 4 Steinberg D, Parthasarathy S, Carew TE, et al. Beyond cholesterol: modifications of low-density lipoprotein that increase its atherogenicity. *N Eng J Med* 1989; 320:915-24.

- 5 LDL as usually determined in the laboratory is a mathematical abstraction, depending upon prior measurement of total cholesterol, triglycerides, and HDL. (HDL is the cholesterol that remains after absorption of serum with resins.) $LDL = \text{total cholesterol} - [\text{HDL} + \text{triglycerides}/5]$.
- 6 Maeda N, Ebert DL, Doers TM, et al. Molecular genetics of the apolipoprotein B gene in pigs in relation to atherosclerosis. *Gene* 1988;70:213-29.
- 7 Hofmann SL, Russell DW, Brown MS, et al. Overexpression of low density lipoprotein (LDL) receptor eliminates LDL from plasma in transgenic mice. *Science* 1988;239:1277-81.
- 8 Scott J. Unravelling atherosclerosis. *Nature* 1989;338:118-9.
- 9 McLean JW, Tomlinson JE, Kuang WJ, et al. cDNA sequence of human apolipoprotein (a) is homologous to plasminogen. *Nature* 1987;330:132-7.
- 10 I picked up this basic diagram on a site visit in Salt Lake City about 10 years ago. I have forgotten the name of the man from whom I pirated it.
- 11 The number of variables is similar to what is encountered in econometric analysis or weather prediction. Each is attacked by studying systems of linear equations with large computers. The record of economists, who cannot explain "stagflation," and meteorologists, who can't predict the weather next month, suggest that a similar approach to the pathogenesis of CHD might be equally unrevealing.
- 12 Brown MS, Goldstein JL. Teaching old dogmas new tricks. *Nature* 1987;330:113-4.

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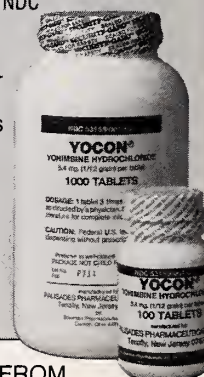
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

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References:

1. A. Morales et al., *New England Journal of Medicine*: 1221, November 12, 1981.
2. Goodman, Gilman — *The Pharmacological basis of Therapeutics* 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. *Weekly Urological Clinical letter*, 27:2, July 4, 1983.
4. A. Morales et al., *The Journal of Urology* 128: 45-47, 1982.

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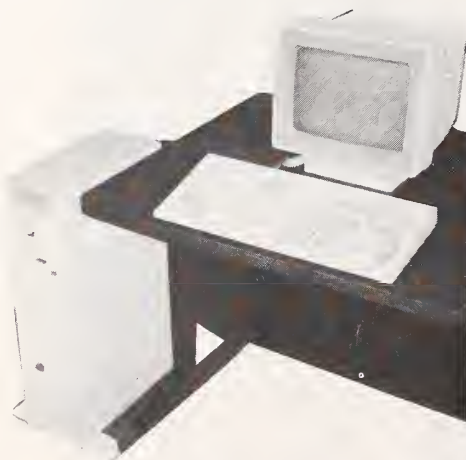
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Our Four From Greensboro

Short Biographies of Four Presidents of the North Carolina State Medical Society

Robert L. Phillips, M.D.

I have never seen a state medical society president who wasn't a politician, but I have seen many medical politicians who never became president. I am not equating these politics with national politics where, it seems, there is no real alternative to ruthlessness; North Carolina physicians do not get caught up in the national brand of political chaos. Our four Greensboro presidents were all strong family men. They were good in the field of medicine, but were not necessarily experts in their particular fields. All of them worked diligently for the local and state society; knew the ins and outs of the organization; served on many committees; attended most of the meetings; read constantly and wrote well; stayed informed on local, state and national issues; and generally all had a wider view of the horizon. They were all active in church, had busy practices and good incomes, yet were relaxed and sociable. They pondered what was good for medicine and worked toward that end.

I know of none that joined the state society with the expressed or hidden idea of becoming president one day. They were productive members who were told by others that they would do a good job as president. Active, involved and concerned, they have been people who were complimentary to their peers but critical of other states.

Once president, each wanted total involvement by the membership, but they have been the first to realize that only about 10% have any driving interest. The other 90% pay dues, sometimes come to the local and state medical meetings, but regard them as social affairs where an occasional good talk can be heard. This crowd never wants to hear the minutes from the last meeting, although there was a good chance they were not present.

Our presidents were not necessarily good speakers, especially to a large audience, but did well expressing themselves at committee meetings and "one to one." Their wives have been independent and yet totally supportive. Occasionally, our presidents have not even been the best or most popular physicians in their local communities, but have carried rightful, earned respect in the state, an honor awarded for past involvements. They have not been abrasive or accusing and, in fact, often engaged in self-deprecation. All of them have been involved in civic affairs and can be described as good citizens. They usually backed the American Medical Association (AMA) to the hilt and were not complimentary of any political party if they found it to be restricting the freedom of the physician and patient.

Due to their total involvement in medicine and their knowledge of issues of the day, they reflected the recognition of change. We have indeed been fortunate in our four Greensboro Presidents of the North Carolina Medical Society.

James King Hall, M.D.

James King Hall was born in Iredell County, January 13, 1816. He studied medicine with Dr. Burgess Beall of Davidson County and attended lectures at the University of Pennsylvania during the winters of 1847 and 1848. Dr. Hall was married January 4, 1849. His wife, Fannie M. (b. Nov. 16, 1826) was the granddaughter of Rev. William D. Paisley, who organized the first Presbyterian Church in Greensboro in 1824. Dr. Hall returned home and practiced medicine in Davidson and Iredell Counties until 1858, when he moved to Greensboro. He had been reared in the Bethany Congregation of which his father was a ruling elder and was received into the communion of the church in his early life. His membership and the memberships of his wife, mother and sister were transferred to the Greensboro church in the summer of 1858, when Rev. J. Jones Smyth was pastor.

From Medical Arts Building, 1021 E. Wendover Ave., Ste. 305, Greensboro 27405.

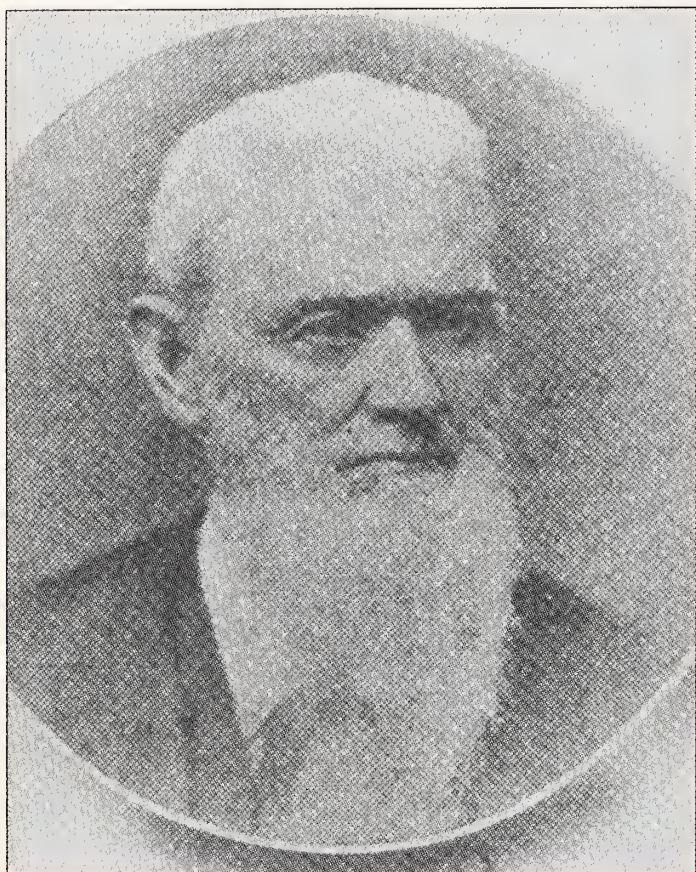
When James Hall came to Greensboro, he immediately joined the North Carolina Medical Society, became busy, and established a solid reputation. In 1860, at the state society meeting held at Washington, North Carolina, Dr. Hall was appointed to the Credentials Committee, Committee on Constitution and By-Laws,¹ and was to report at the next meeting on diseases “in their respective localities.” At the time of the State Society meeting in May, 1861, the country was full of war; indeed, the shot that opened the bombardment of Fort Sumter had been fired and Governor Ellis had authorized the raising of ten regiments. Despite all this, the only reference in the transactions to the war was the report of the Committee on Nominations, which declined to nominate

made Surgeon of the 22nd Regiment, North Carolina troops. According to the *Transactions of the North Carolina Medical Society*, Dr. Hall returned to Greensboro after the war and began attending the state meeting again in 1872, at which time he was placed on the Finance Committee. In 1874, he was placed on the Nominating Committee. In 1876, he was elected 4th Vice-President, was still on the Finance Committee, and was placed on a committee to inquire into the irregularities of the medical colleges in North Carolina. In 1878, he suggested the next Society meeting be held in Greensboro, and in 1879, the meeting was held there at Benbow Hall. In 1882, still a member of the Finance Committee, he was elected Vice-President and was placed also on the Obituary Committee. Dr. Hall became President of the Society in 1883 at the 30th meeting in Tarboro.

The *Transactions* reported Dr. Hall's death in 1885, saying that he was “cautious and conservative, but kept well posted in the progress of his profession, and his large experience and strong powers of observation made him eminently successful in practice. Frank and generous in disposition, gentle as a woman in the sick room, he gained and held the esteem and affection of his patients as few men can do; while his many good qualities of head and heart gained for him the respect and good will of all who knew him.”

Dr. O. Norris Smith, the grandson of Dr. J. Henry Smith, who was the Pastor of the Presbyterian Church in Greensboro from 1859 to 1897, has arduously compiled the diary of his grandfather. There he has found references to Dr. James Hall's terminal illness. Dr. Hall had treated Dr. Smith's family and was a close friend. In September 1885, Dr. Smith had written in his diary, “Tuesday, 29th, called to see Dr. Hall, who is sick, read and prayed with him ...” A similar reference was made in October. In November, “Wednesday 4th, Dr. Hall is seriously ill—talked and read and prayed with him. Friday 6th, upon my arrival in Greensboro (from Kernersville preaching) heard that Dr. Hall was very low—went over there and sat awhile. On Friday 13th, called up (with J.H. Lindsay) to inquire about Dr. Hall. He cannot live long. He died at 7 1/2 P.M.” Dr. Smith gave James Hall's funeral memorial: “His high-toned and deep-souled sense of honour and integrity—his genuine tender heartedness—his honest frankness—his interest in and devotion to his patients—his high and well deserved reputation as a profound and skillful physician” makes this a great loss.

In her diary, Mrs. J. Henry Smith gives this memorial tribute to Dr. Hall's wife, Fannie M., in August 1913: “she was born of a godly and honored ancestry, the vein and sinew of Guilford County, whose lives moulded the history of the church and state in their day. The Woman's Foreign Missionary Society of the 1st Presbyterian Church mourns today its well beloved and oldest member. Her membership dates back a full 50 years to a former day and generation. A living link was she between the two. Her death marks the passing of a beloved familiar landmark in Greensboro. On the last night of her life, when she retired to her room, she said, ‘I am more afraid to live than to die.’”



James King Hall, President, 1883.

delegates to the AMA. Notwithstanding a small attendance and the absence of the President, Secretary, and Treasurer, the Society proceeded to business as usual. Dr. J.J. Summerell was elected president, and the Society adjourned, hopefully expecting to meet in Wilmington in May, 1862. Instead, because of physician commitment to the war and the uncertainty of the times in North Carolina, it could not meet until 1866 in Raleigh. What records were kept for these years were lost or destroyed by the Union Army as it moved through Raleigh on its way to Bennett Place, where General Johnson surrendered.

In 1861, James Hall entered the Southern Army and was

John Wesley Long, M.D.²

John Wesley Long was born January 10, 1859, in Randolph County, North Carolina. His father, a physician, died in 1863, when Wesley was four years of age, but had lived long enough to instill into the life of his young son a love for medicine. Wesley ran away from home at the age of 13 and stayed at the home of his Uncle William Long. He attended the Sylvan School at Snow Camp, North Carolina. In 1881, as was the custom of the day, he read medicine under his preceptor, Dr. John F. Miller in Goldsboro, North Carolina. He graduated from Vanderbilt University in 1883 and from the University of Nashville in 1884, when he joined the North Carolina Medical Society, opened his practice in Randle-



John Wesley Long, President, 1923.

man, North Carolina, and began writing and lecturing extensively. That same year, he married Mary Elizabeth Troy Wollen.

In 1887, Dr. Long helped found the Southern Surgical and Gynecological Association. In 1891, he was elected Second Vice-President of the North Carolina Medical Society and was Chairman of the Section on Gynaecology, as well as secretary of the Randolph County Medical Society. In 1892, he was chosen as the Orator for the State Society.

In 1893, Dr. Long was full Professor of Diseases of Women and Children, Medical College of Virginia, where he

introduced operative gynecology. In 1894, he became a fellow of the American Association of Obstetricians and Gynecologists and a member of the Richmond Academy of Medicine. In 1896, he became the first physician in Virginia to use a cystoscope.

Dr. Long began general surgical practice in association with Dr. John Whitehead in Salisbury, North Carolina, in 1897. Two years later, he was appointed as delegate from North Carolina to the Virginia Medical Society.

Dr. Long began practice in Greensboro in 1903. By the time he was elected President of the Guilford County Medical Society in 1912, he had already been appointed to the State Board of Medical Examiners for the Nurses, had become President of the Virginia-North Carolina Good Roads Association and Chairman of the Section of Gynecology for the State of North Carolina. The following year, 1913, he was President of the Southern Surgical and Gynecological Association and became a charter member of the American College of Surgeons. Because of his extensive writings and national reputation, he became a delegate from the State of North Carolina to the Association of Medical Colleges. He brought fresh ideas into every organization to which he belonged. It was quite an honor for him to be asked by Dr. Joseph C. Bloodgood of Baltimore to address the Clinical Congress of Surgeons in 1915 on the topic of "First Aid." The recommendations in his lecture were forwarded to the President of the United States.

In 1917, he opened his own hospital, Wesley Long Hospital, and in the same year was appointed to the Historical Commission for the Medical Society. At this time, he was commissioned a Major in the Medical Officers Reserve Corps and organized one of the first Red Cross ambulance units. He organized Base Hospital No. 65 and was Chief of the Surgical Service. He also served as Medical Aide to the Governor. In 1918, Lt. Col. Long organized Evacuation Hospital No. 38 and was a consulting surgeon to the Army; he was also named Chairman of the Board of Trustees of Moses H. Cone Memorial Hospital, having been a trustee for five years.

Moses Cone had died in 1908 at the age of 51. His wife Bertha Lindau, who lived for forty years more, founded and established the Moses H. Cone Memorial Hospital in 1911. Although the Board of Trustees met frequently, no construction could begin until after her death.

In 1921, Dr. Long was Chairman of the State Organization for the Control of Cancer. In 1923, he became President of the North Carolina Medical Society. While President, he introduced the concept of the Junior Candidate Group to the American College of Surgeons, recommended the establishment of the Women's Auxiliary to the Medical Society, and appointed a committee to consider the establishment of a four-year medical school for North Carolina.

What prompted Dr. Long to apply for a Master of Surgery degree from the University of Manitoba is a mystery. No applicant outside the university had ever received one. His application was received January 2, 1924, and the

requirements were forwarded to him. Among other things he was required to carry out a surgical procedure with Dr. J.F. Mitchell, who acted as the examiner from the university. Dr. Mitchell sent a telegram on May 13, 1924, that "Dr. Long did a beautiful operation for a ruptured uterine pregnancy, removing the appendix at the same time. The woman is doing splendidly." The oral part of the examination went well. His thesis was "The Value of Enterostomy in Intestinal Obstruction." Letters of recommendation were written by Joseph C. Bloodgood, Stuart McGuire, J. Shelton Horsley, Franklin H. Martin, and A.J. Ochsner, who stated, "Dr. Long is a man of great learning, remarkable skill as a surgeon, and a gentleman of the very highest type. He has done very excellent work, both as a practical surgeon and as a scientific worker and is well qualified to receive the degree of Master of Surgery, for which he has applied in your great University." He received the degree on May 16, 1924.³

Dr. Long was known throughout the state and nation. He produced 87 papers and, as can be seen from the above, was a force in American medicine. Perhaps his greatest accomplishment was the set of complete case histories kept year by year until his death. He compiled some 137 volumes, of which 113 are available today, the holdings of Wesley Long Community Hospital. They are records of the medical profession, basic references that report and describe the transitional period from pioneer to modern medicine. They portray a man who was an expert surgeon, operating at first in homes in and around Piedmont, North Carolina.

Many living patients, employees and physicians have stated that because Dr. Long started his own hospital, he was very demanding; and at times he was called a "medical dictator." In his defense, it can be stated that the management of the hospital, the payroll, all of the purchasing, and so forth, plus insistence on excellence from the participating physicians, demanded a type of dictatorship. Had this not been carried out, the hospital, like many others, would have rapidly become insolvent. In fact, after his death from a myocardial infarction on August 1, 1926, the hospital was opened to all professionals, some of whom were not qualified, and the hospital promptly went into bankruptcy.

John Wesley Long was deeply religious and a devoted family man. All of us are better off because of his energies.

Frank Alexander Sharpe, M.D.

Frank Sharpe was born September 27, 1889, in Guilford County and was always considered a favorite son, born of sturdy pioneer Scotch-Irish ancestry. He graduated from Davidson College in 1910 and for the next year or so was in business. He then attended the University of Pennsylvania, receiving his M.D. degree in 1916. He had an internship at Lennox Hill Hospital in New York. He then entered the army, and during his service in the Army Medical Corps as captain, he had additional training at Ft. Riley, Kansas, the Mayo Clinic, and Walter Reed Hospital.

He came back home in 1919 and soon limited his practice to obstetrics and gynecology. His practice grew rapidly. As the *Greensboro News* would say of him many years later, "His personal attributes won and held a large host of friends outside the realm of his professional activities as he went in and out among his fellow men and gave of his leadership in other fields. As to what members of his own profession thought of him, far beyond the confines of his own community and county, stands a long list of honors conferred upon him, honors won on the basis of merit, of ability, of achievement, of fellowship and of service." (November 1947.)

Even with the large practice, Dr. Sharpe found time to engage in civic activities as a Rotarian, a Mason and a Leg-



Frank Alexander Sharpe, President, 1947.

ionnaire, and a member of the Sons of the American Revolution. He was also an active member of the First Presbyterian Church, of which he had been a deacon for 13 years.

Dr. Sharpe also was one of the original directors of the newly formed Wesley Long Hospital and attended practically every meeting. He was one of the original members of the Greensboro Board of Health, serving from 1942 to 1946. For six years he was a member of the Board of Medical Examiners of the State of North Carolina. In the meantime, he became a Fellow of the American College of Surgeons

and a member of both the North Carolina and South Atlantic Obstetrical and Gynecological Societies. He became President of the Guilford County Medical Society in 1930. He also was on the Governor's Board of the Merchants and Manufacturers Club. He was one of the first members of the Greensboro Academy of Medicine.

Dr. Russell Lyday stated on September 1, 1988, that it was the efforts of Frank Sharpe that gave Wesley Long Hospital its first air conditioning equipment in the operating rooms. ORD (Overseas Replacement Depot) camp in the eastern part of Greensboro was closing down and Dr. Sharpe had the Army sell its air conditioning units to the hospital. Dr. Lyday also stated that Frank "was one of the most admired and popular physicians that this state has ever known. Above all and under all circumstances, he was the perfect gentleman."

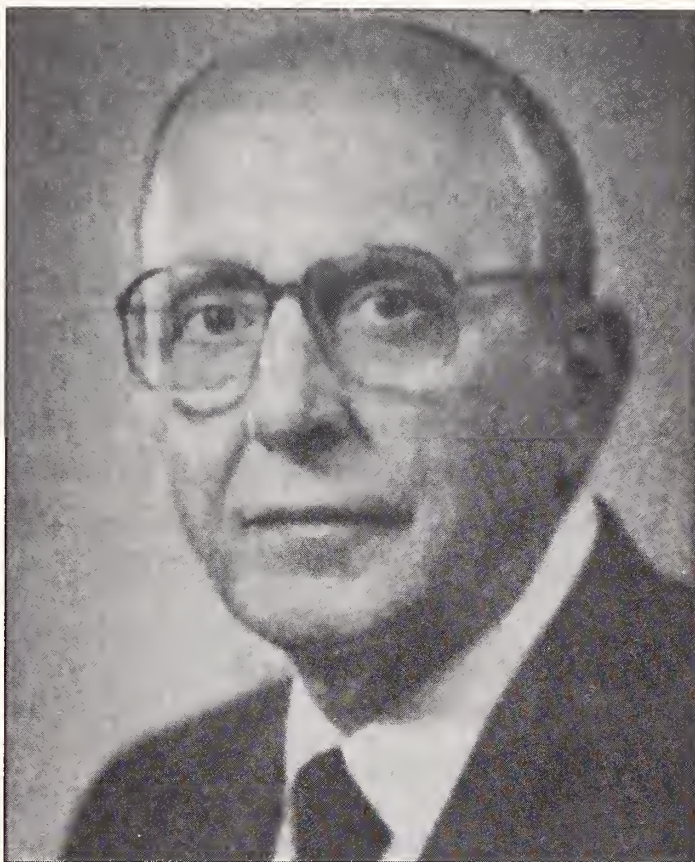
In May, 1947, Frank Sharpe was installed as the 94th President of the North Carolina Medical Society. During his seven months in office, he visited just about every city and town in North Carolina, along with keeping up his church and civic affairs and his huge practice. No president ever approached the office with more wholehearted enthusiasm, and, once in office, none was a more tireless worker. Even before being installed as president, he had sought a personal interview with Richard Tufts, owner of the Carolina Hotel at Pinehurst, and had made arrangements for the 1948 meeting of our Society. After Frank Sharpe's premature death on November 21, 1947, an editorial in the *Southern Medical Journal* stated that a lesson should be learned from the early cutting off of this immensely valuable life: "This Journal believes these unreasonable demands on the strength of our presidents has shortened the life of more than one of them. It hopes these demands will be brought within the bounds of reason, which means reduction by at least three-fourths."⁴ Only one other such instance has occurred in the history of the Medical Society, that of Dr. J.A. Burroughs, who died while in office in 1910.

Dr. Sharpe's death at the age of 58 was a shock to everyone. The Frank A. Sharpe Memorial Fund was created for the Children's Home Society of North Carolina to honor his work with that organization. Over 300 telegrams flooded the Sharpe home, and although his funeral service was held on a cold, wet Sunday, the huge sanctuary of the First Presbyterian Church was filled to capacity. Brockton R. Lyon, a colorful Greensboro physician, said of Dr. Sharpe that "he possessed in abundance refinement, poise, accuracy and resourcefulness, which coupled with kindly understanding, made him a well rounded medical man. His patients, friends and associates came from all strata of society, and it can be truthfully said that he could 'walk with Kings—nor lose the common touch.'" Dr. J. Fred Merritt commented, "It has been said that a complete physician is one who has been able to blend into a single mosaic, the rich heritage of his family up-bringing, the spiritual essence of his religious training, the ripe wisdom of his cultural background and, finally, the rigid indoctrination of scientific methodology."

Frank Sharpe and his family lived in Summerfield at "Owls Roost." This was subsequently purchased by Burlington Industries for the "Bur-Mill Club." Perhaps when all is said and done, his biggest legacy is in his family. What an example he set. All of his children and grandchildren carry the same good thread, making every community in which they reside a better place for all of us.

Ernest Burton Spangler, M.D.

The only one of our four born out of state, Ernest Burton Spangler was born in Princeton, West Virginia, September



Ernest Burton Spangler, President, 1988-1989.

26, 1924. His father, a pharmacist, operated drugstores in the area, and his mother was a nurse. It therefore seemed natural when he entered the field of medicine.

Ernest Spangler enrolled at Davidson College in the summer of 1942, but early in 1943 was drafted into the Army. He was sent to the Citadel, Ft. Bragg, Ft. Riley in Kansas, and then applied for and was accepted in Officer's Candidate School, graduating in 1944 at Ft. Benning. He was sent to Europe in the army of occupation and, as a 21-year-old First Lieutenant, had responsibility for transporting a trainload of displaced persons back to Poland.

After discharge, Spangler returned to Davidson, graduating in 1948. He received his M.D. from the University of

Pennsylvania and married Jean Martin, a Registered Nurse, on commencement day, 1952. He then had a rotating internship at Evanston Hospital, Northwestern University, and the next year a general practice residency in Denver. When his mother became ill, he and Jean moved back to Princeton, and Dr. Spangler began work as a general practitioner, which after five years was wearing to say the least. Therefore, he chose the specialty of Radiology and moved to Chapel Hill for his residency. He started the residency with four children, and he and Mrs. Spangler had their fifth and last child in Chapel Hill. In 1962, the family moved to Greensboro to be associated with the radiology department of Wesley Long Hospital.

As his wife said when she introduced Ernest Spangler for his inaugural address at the State Medical Society meeting in May, 1988, "he has been active in organized medicine." I doubt that many men have been as active, as can be seen in the past and present activities. Dr. Spangler has been president of the Junior Chamber of Commerce in Princeton, West Virginia; A member of the Guilford County Health Planning Council; Director of the Piedmont Triad Health Council; member of the steering committee for the Greensboro area Independent Practice Association-Health Maintenance Organization feasibility study; President of the North Carolina Chapter of the American College of Radiology in 1971; and Newsletter Editor of the same organization from 1970 to 1986. He has been Councilor of the 8th Medical District and Chairman of the Medical Society's commission to work with the North Carolina Industrial Commission from 1972 to 1979.

Dr. Spangler was elected President of the Greensboro Academy of Medicine in 1973 and of the Guilford County Medical Society in 1976. He was director of the North Carolina Peer Review Foundation from 1973 to 1979, and is founding director (1975) of North Carolina Medical Mutual Liability Insurance. As Chief of Radiology of Wesley Long Hospital since 1975, he has been on the Medical Board continually, as well as being Chief of Staff in 1977.

In the North Carolina Blue Cross and Blue Shield organization, Dr. Spangler has been a trustee, member of the executive committee and on the nominating committee. He also is director for the University of North Carolina Medical foundation, a member of the area Mental Health, Mental Retardation and Substance Abuse Board, member and former director of the Greensboro Kiwanis Club, and founding director of the Medical Security Insurance Company.

Ernest Spangler received the distinguished Service Award from the University of North Carolina School of Medicine in 1985 and is an honorary life member of the Greensboro Chamber of Commerce. He has also found time to teach radiology residents at Chapel Hill one day a week for 20 years.

All of our four presidents have known the ins and outs of the Medical Society, and Ernest exemplifies this quality. In the meantime, he has been active in the church and still maintains activity in all of the civic organizations. His

devoted, industrious wife was President of the Women's Auxiliary in 1968. All of their five children have done well; two are physicians and one a Ph.D. anatomist.

No one was more deserving of this presidency than Ernest Spangler. He has paid his dues and we all know that his term of office is characterized by productivity. He will have served eighteen months, from May 1988 to November 1989, since the beginning of the term of office is now changed to November. Six of our early presidents had two-year terms, but the term has been only one year since 1861.

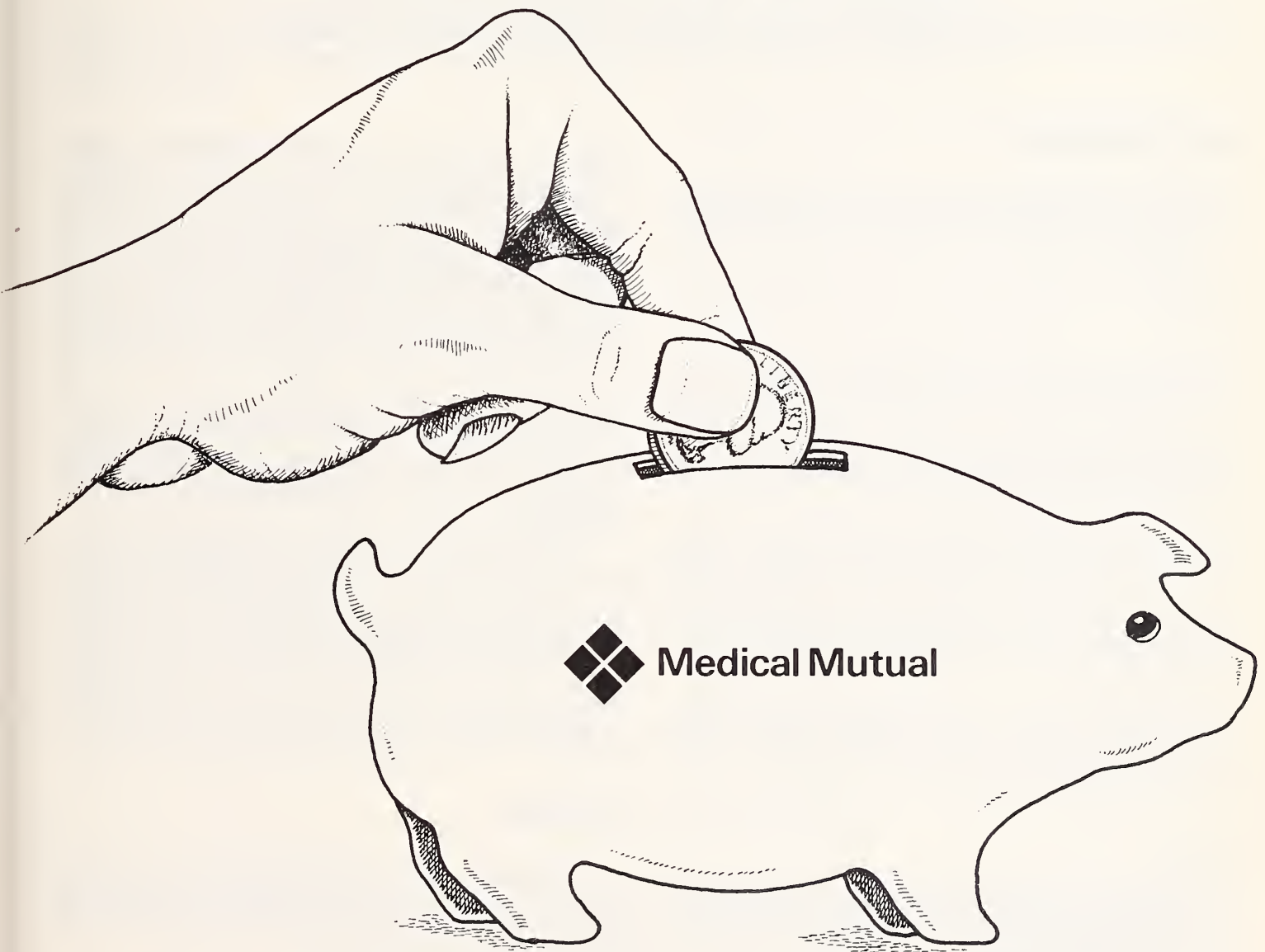
Ernest has surrounded himself with extremely capable radiologists and an excellent staff at Wesley Long Community Hospital. He becomes devoted to any organization whose aim is to improve the family, the patient, his city, county, state, and the medical profession at large. For all of these organizations he has set a tremendous example for others to follow.

Dr. Spangler, in a verbal communication in November 1988, relayed his mission for his term of office: to work toward "improving communication with the membership and public and to increase the legislative activity on those problems facing the State today, such as indigent care, long term care, nursing and medical technician shortages and the rising cost of medical care." □

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- 2 Phillips RL. The Life and Writings of John Wesley Long, M.D., 1859-1926. Greensboro: Custom Graphic Impressions, 1985.
- 3 Ibid., pp. 138-41.
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Death With Dignity

The Executive Council of the North Carolina Medical Society adopted the following recommendations of the Bioethics Committee on "death with dignity." This policy will be reviewed and finalized at the next meeting of the House of Delegates.

Policy Statement

1 That the North Carolina Medical Society adopt as policy the following guidelines on death with dignity in North Carolina.

Part I

RESOLVED, That the North Carolina Medical Society endorse as policy that it is ethical in appropriate clinical circumstances to limit, withhold or discontinue artificial hydration and artificial feeding of the terminally and incurably ill patient; and be it further

RESOLVED, That the North Carolina Medical Society consider artificial feeding and/or artificial hydration in such circumstances to be extraordinary means of life support even though not yet clearly recognized in North Carolina law; and be it further

RESOLVED, That the North Carolina Medical Society promote legal clarification through all appropriate measures including litigation or legislation.

Part II

RESOLVED, That the North Carolina Medical Society endorse the following Policy and Guidelines on Death with Dignity in North Carolina.

Policy

The North Carolina Right to Natural Death Act Recognizes a patient's right to a peaceful and natural death. Optional and nonexclusive statutory procedures are available to provide a "safe harbor" of protection from liability in circumstances involving withholding or withdrawing "extraordinary means" of life support for a terminally ill patient who is comatose or has a living will. The statute defines "extraordinary means" as "any medical procedure or intervention which in the

judgment of the attending physician would serve only to postpone artificially the moment of death by sustaining, restoring, or supplanting a vital function." While these procedures are useful and recommended as a liability management device under appropriate circumstances, the Act also authorizes following the common law, and so doing may allow greater sensitivity to patient needs. The common law continues to grow through court decisions and address questions relative to the patient's rights to control his or her medical care decisions and to death with dignity. While the statutory procedures are available, the physician has a degree of freedom in this area to use the often less stringent common law sensitively to mesh patient needs and right with legal constraints.

It is our policy to provide service to dying patients in the most sensitive and humane manner prudent under the circumstances. When consistent with this policy, it is ethical to withhold artificial hydration and nutrition. These Guidelines should include this practice by deeming it a medical intervention when clarification occurs concerning the legality of the practice under common law (Part A) or statutory law (Part B).

Guidelines

A. Orders to Limit, Withhold or Discontinue Extraordinary Means or Do Not Resuscitate (DNR) Orders When the Physician Chooses NOT TO APPLY the Provisions of the Right to a Natural Death Act.

While it may be appropriate to use the procedures contained in the Natural Death Act outlined in B below in order to have the civil and criminal immunity protections it offers, there are circumstances in which the physician may elect not to do so. In those circumstances the following are the physician's recommended procedures:

1 All do not resuscitate (DNR) orders or orders to limit, withhold or discontinue artificial means of life support shall be in writing on the patient's medical record. The order shall be placed in the physician's orders section of the medical record.

- 2 The physician shall state in a progress note of the chart the basis for the execution of the DNR order.
- 3 Such orders shall be renewed in a timely manner.
- 4 Relevant conversations with family members should be noted in the medical record.
- 5 The order may be issued by the physician verbally, by telephone, while the responsible registered nurse listens to and witnesses the verbal telephone order, provided that the telephone order shall be signed by the physician within twenty-four (24) hours of issuance.

B. Orders to Limit, Withhold or Discontinue Extraordinary Means or Do Not Resuscitate (DNR) Orders When the Physician Chooses TO APPLY the Provisions of the Right to a Natural Death Act.

Where There Is a Living Will

A patient may declare, through a living will executed in accordance with G.S. 90-321(c), a desire that his life not be prolonged by extraordinary means. If such a living will has not been revoked, then extraordinary means may be limited, withheld or discontinued upon the direction and under the supervision of the physician, in which case the physician should:

- 1 Place a copy of the patient's declaration (living will) in the medical record.
- 2 Document in the physician's orders section of the medical record all DNR orders or orders to limit, withhold or discontinue extraordinary means.
- 3 State in a progress note of the chart the basis for the execution of the DNR order.
- 4 Document in the medical record that one or more vital functions can be restored or sustained only by extraordinary means.
- 5 Have a consulting physician record a statement in the medical record concurring with the physician's assessment of the patient's present condition.

Where There Is No Living Will

Where there is no living will, the following are the requirements for issuing a DNR order:

- 1 Orders shall be issued only by the patient's physician.
- 2 The order shall be in writing, but it may be issued by the physician verbally, by telephone, while the responsible registered nurse listens to and witnesses the verbal telephone order, provided that the telephone order shall be signed by the physician within twenty-four (24) hours of issuance.
- 3 The order shall be placed in the physician's orders section of the medical record.
- 4 Any of the following shall require a reassessment of the appropriateness of the DNR order or other order to limit, withhold or discontinue extraordinary means.

- a. A change in the patient's condition, including mental status.
- b. A change from one attending physician to another. New orders to limit, withhold or discontinue extraordinary means, including the execution of a DNR order, shall be written, if appropriate, in accordance with these procedures after such reassessment.

- 5 Orders to limit, withhold or discontinue extraordinary means, including a DNR order, shall be renewed in writing in a timely manner in accordance with this procedure.

Where there is no living will, proper documentation of a DNR order is accomplished by recording the following in the patient's medical record:

- 1 A statement by the patient's physician that the patient has not made a living will.
- 2 A statement by the physician that the patient's present condition is terminal, incurable and irreversible; that the patient is comatose with no reasonable possibility of returning to a cognitive, sapient state or is mentally incapacitated; and that one or more vital functions can be restored or sustained only by extraordinary means.
- 3 A statement by a consulting physician who concurs with the physician's assessment of the patient's present condition.
- 4 A statement by the physician that the limiting, withholding or discontinuance of extraordinary means was upon the direction and under the supervision of the physician with the concurrence of the patient's spouse, guardian or majority of relatives of the first degree, in that order, if any are available.
- 5 If the patient's spouse, guardian, or majority of relatives of the first degree are not available, a statement by the physician that such was the case and that the limiting, withholding or discontinuance of extraordinary means was at the physician's discretion, upon his direction and under his supervision.

D. Continuance of Care

The presence of a DNR order or an order to limit, withhold or discontinue extraordinary means does not relieve the physician of the responsibility of continuing to monitor the condition of the patient, provide symptomatic relief and treat the patient's medical conditions as they arise. The nursing staff is responsible for providing the supportive therapy and care necessary to maintain the dignity and quality of the life of the patient, as well as notifying the physician of significant changes in the patient's condition.

Should a conflict arise between and among the medical staff, the nursing staff and/or the patient's family regarding the issuance of a DNR order or other order to limit, withhold or discontinue extraordinary means, the institution's ethics committee or other appropriate entity should be asked to provide a clearinghouse for discussion of the conflict. □

Edward C. Halperin, M.D., Book Review Editor

Urologic Surgery in Neonates and Young Infants, by Lowell R. King, M.D. Philadelphia: W.B. Saunders, 1988, \$75.00.

Reviewed by John M. Gazak, M.D., 1900 Randolph Rd., Suite 816, Charlotte 28207.

While rotating through Pediatric Surgery as a medical student I was privileged to hear Dr. C. Everett Koop deliver what proved to be a most inspirational overview of his beloved art. Of the many "bytes" of information I digested that day, one which has persisted indelibly in my memory is his emphatic plea to honor the concept that children who are ill must be viewed as entities unto themselves and must never be treated as miniature adults.

Urologic Surgery in Neonates and Young Infants (USNI) is a textbook that bears witness to the fact that the surgical care of sick children has enjoyed a remarkable development since the formative years of pioneers such as Dr. Koop and the book's editor Dr. Lowell King. The combination of advancing technology and the direction of noble Pediatric specialists dedicated to the needs of impaired and premature newborns has elevated neonatology to the status of a major specialty unto itself. The fact that USNI was even conceived lends credence to the idea that neonates with congenital anomalies are indeed a unique group of patients whose medical and surgical care demand expertise beyond the scope of their older peers.

USNI provides a "prefix" to *Clinical Pediatric Urology*, Dr. King's earlier collaboration with Doctors Kelalis and Belman, now in its second edition and for many the "bible" of the subspecialty. Dr. King, thanks to his almost legendary status within his field, has attracted a distinguished collection of contributors who have updated topics and filled the gaps between pediatric urology and the urologic and nephrologic considerations unique to neonates, preemies, and even the fetus. This text's fulfillment of this superspecialized task should assure it preeminence within its field for many years. Its only intrinsic weakness—one it shares with all tomes of this nature—is that the incredible pace of advancement in its field will soon make some of the problems and questions addressed within its pages obsolete.

King's text delves beyond the neonate into the provocative world of the "unborn" fetus who in the realm of genitourinary (GU) anomalies may, thanks to ultrasonography, be studied through noninvasive imaging. Such entry into previously uncharted territory provides a remarkable opportunity for early diagnosis and, in rare instances, the possibility of dramatic intervention; a pursuit which itself is in its infancy.

This text will be required reading for all Urology residents and those reviewing for Urology Boards, and should be for all those who consult on neonates with GU anomalies or ailments. It should be available in all neonatal units for physicians and nurses requiring quick reviews of those problems distinct to GU anomalies, which can be difficult for the inexperienced. It will be a valuable ally to anyone who oversees the care of these newborns and should be available to those who are involved with prenatal diagnosis and perinatal care. It should be a valuable ally to radiologists doing GU studies on neonates and infants for its insight into specific clinical entities plus special emphasis on areas prone to pitfalls and controversy, such as the chapter by Homsy and Koff on the problems of diagnosing obstruction.

The text is nicely organized with the first chapters devoted to embryology, fetal diagnosis, fetal and neonatal renal function, and the consequences and management of obstructive uropathy. The later chapters review the spectrum of congenital GU entities and their management. Although the first chapters will command the widest readership, the neonatologist, pediatrician and nephrologist will be hard pressed to find more concise yet thorough discourses on topics such as the urologic management of Spina Bifida, urinary tract infections, and ambiguous genitalia. The chapter on anesthetic considerations should be of practical value. There is even a chapter discussing the destined-to-be-for-ever-controversial topic, neonatal circumcision.

Special mention is warranted for the provocative chapter on pathoembryology of the GU tract by Cook and Stephens, and for a superb review by Cromie of the hyperfiltration phenomenon issue with major long term implications for those with reduced nephron mass and with what appears to be the potential to benefit from preventive therapeutic measures.

The chapters by Chevalier and El Dahr concerning the case for early relief of obstruction, plus King's chapter on the management of the multicystic kidney and UPJ obstruction, will surely reignite some smoldering debates among Pediatric Urologists.

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

Although the chapter on neonatal torsion is helpful, extension from this topic might well have provided a discussion of other inguinal and scrotal entities in neonates, including inguinal hernias which occur so frequently in premature infants, as well as guidelines in the management of these problems.

A book of this nature is a significant addition to its field. Later editions might usefully include sections on cystic renal disease, genetics with attention to specific patterns in GU disease, and, in keeping with the author's interest in fetal

medicine, a section on the potential role of genetic engineering in the future. A chapter emphasizing fluid, electrolyte and acid-base issues would be of great practical value, especially if a "cookbook" section on calculating and correcting various deficits were included.

Kudos to Lowell King for filling a void in the urology literature while helping all of us who are dedicated to the care of these unfortunate babies to continue the pursuit of timely diagnosis and therapy with an eye toward future vistas and triumphs in their care. □

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Letters to the Editor

The Resource Based Relative Value Scale

To the Editor:

Once again I am compelled to write this letter to the editor in response to a second editorial by James P. Weaver, M.D., concerning the Resource Based Relative Value Scale (NCMJ 1989;50:381-2). Any intelligent physician can sympathize with the blow-by-blow account of the stressful medical care provided by Dr. Weaver as described in his editorial paper. All of us have been there in different capacities and at different times! All physicians have suffered under this degree of stress in the care of patients who are acutely ill, whether they are being cared for in the emergency room, the critical care units of the hospital, or in the operating room.

I would strongly disagree however with the statement he makes at the end of his article which states "don't they devalue all physicians when they devalue any of us?" The purpose of a Resource Based Relative Value Scale is not to "devalue" services but rather to place an objective value on each physician service. While Dr. Weaver attempts to claim that his services as a thoracic surgeon are being "devalued" by such a system, I can equally claim that the current charge based system of physician reimbursement has for decades "devalued" the evaluation and management services provided by all physicians, especially those of us in primary care. It is simply a matter of fact that the current charge based system of reimbursement is historically insane as well as being very inflationary. A Resource Based Relative Value Scale will simply provide an objective mechanism upon which to value all physician services relative to each other. I would argue that no system of reimbursement will ever be able to compensate physicians for those cases that are inordinately stressful. But for each one of these there are those cases which are straightforward and for which the reimbursement will be the same and will compensate for the unusually stressful events in each of our lives.

I look forward to the day when Dr. Weaver has finally comprehended the fact that the American Medical Association has endorsed a physician reimbursement system based on a resource based relative value scale. Dr. Weaver, and those who share his feelings, is the one who is causing a division of the "House of Medicine." I would urge him to join with the majority of physicians who have endorsed an objective and fair system of reimbursement for physician services which should serve us well in the future.

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Expert medical witnesses

To the Editor:

At the risk of being partisan, perhaps even defensive, I would like to take issue with Dr. William M. Hendricks's editorial, "Ethical guidelines for expert medical witnesses" (NCMJ 1989;50:378-9).

Dr. Hendricks states that "unfortunately, at this time not one of the medical schools in North Carolina has developed ethical guidelines for its faculty when they act as expert medical witnesses." In the same paragraph he discusses accountability relating to faculty income derived from opinions as expert witnesses. The tone of the paragraph suggests (at least to this reader) that the quality of these opinions is sub-standard and motivated by pecuniary interests, thus making it necessary for our academic medical centers to develop written guidelines for our clinical faculty members.

In the absence of data to the contrary, I choose to believe that the great majority of academic clinical physicians, when asked to give expert opinion in medical litigation, provide the same high quality that is expected of all physicians practicing within the state.

I do applaud the guidelines from the American Academy of Pediatrics, as Dr. Hendricks knows. I included a copy of them, with favorable comments, when I responded to his letter of inquiry regarding written ethical guidelines at East Carolina University School of Medicine a few months ago.

Thomas F. O'Brien, Jr., M.D., Associate Dean
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Medicare and nursing home patients

To the Editor:

When a North Carolina physician sees a nursing home patient for the monthly visit as required by law and then is called back one or more times in the same month to treat the patient for pneumonia, the claim for payment is denied. Medicare considers one visit a month mandatory but more than one unnecessary. The rules do allow for more visits to treat acute conditions, but somehow this is consistently ignored in processing claims. The physician gets a computer printout that not only rejects the claim, but threatens legal sanctions if the bill has been paid and the physician doesn't return the money. An appeal is invited if the physician thinks the visit was necessary. The physician writes an explanation which says what the codes on the claim said in the first place and sends it to Equicor. In due time another rejection arrives

exactly like the first.

Equicor says this is a mixup caused by inexperienced personnel hired when they took over as Medicare carrier. It says that when we have made more than one visit in a month we should just write a little explanation on the claim form that will alert the claims processor that there was a valid reason for more than one visit. With this procedure, they say, the claim will be approved.

Let's look at this. I am an old doctor and remember that when all of this started we wrote out the claims. The claims processors couldn't read our writing, so we had them typed. Then we were told that claims were being processed by computer and codes must be used. Later we were told that we didn't even need to have any explanation about the procedure or diagnoses; the computer only needed the codes. After all this, now we are told that we must start from the beginning and write an explanation on the form.

How about the "inexperienced" claims processors? Let's assume that they are not only inexperienced but illiterate. They can't read that the first visit was for dementia and the second for pneumonia. But even an illiterate can tell that the diagnostic code numbers are different. Computers are used in processing claims. The operator doesn't even have to decide whether or not the visits were necessary. The computer can easily be programmed to kick out claims with more than one visit in a month for chronic illnesses and accept codes for subsequent visits for acute illnesses.

The "inexperienced claims processor" explanation is ridiculous. They are getting a bum rap. They are not illiterate. They are doing what they are told. Let us also give our sympathy to the young ladies sent by Equicor to tell physicians such stories. The procedure is a calculated way to delay or deny payment of legitimate claims for visits to patients in nursing homes.

As medical director of a nursing home I have the responsibility to see that the patients there get good medical care. Medicare is making this increasingly difficult. Those of us interested in geriatrics know that taking a frail chronically ill nursing home patient to a hospital is inadvisable if the treatment can be given in the nursing home. We have also learned that some of these patients should have investigation and treatment modified because of their chronic mental and physical conditions. Most physicians still feel that they must very aggressively investigate and treat the patient—or do nothing. This attitude is encouraged by Medicare. It threatens and denies payment or pays little for visits to the nursing home, but the physician is unquestioningly paid more if the patient is treated in the hospital emergency room. If the patient is admitted, payment is even better. Never mind that treatment at the nursing home may have been more appropriate and thousands of dollars less costly. If the physician thinks the patient's condition doesn't warrant aggressive treatment at the hospital he or she may not see the patient at all.

All of this is reducing the availability of good medical care in the nursing home. Many physicians refuse to take new

patients in the nursing home and many who have patients there are giving them inadequate or inappropriate care. In their frustration, they become angry when they are called by nurses for help.

Everyone is pointing fingers at everyone else. Physicians haven't learned about current ethics and decision making in the medical care of the physically and mentally disabled patient. It is hardly a surprise that patients and their families are confused about this. Inappropriate or inadequate treatment results. Medicare policies encourage this and Equicor makes things worse. Congress shares the blame, for the Medicare and Medicaid laws are inadequate and cumbersome. At the bottom of all of this we are all to blame. Until we, as citizens of this country, are willing to construct and pay for a good system of care, we won't get much improvement. Maybe we should enact laws stipulating for us in our old age the care we now provide the chronically ill disabled elderly patient. That would produce some change!

James H. Sanders, Jr., M.D.
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Abortion

To the Editor:

As practicing Obstetricians and Gynecologists in North Carolina, we feel that another opinion on the issues regarding abortion and House Bill 93 should be voiced. This bill, which would require parental or judicial consent for an unemancipated minor's abortion, was thoughtfully discussed in an editorial by Dr. Edward C. Halperin (NCMJ 1989;50:214-5). We feel that his editorial does not represent the position of many North Carolina physicians.

We do not think, as Dr. Halperin states in his opening sentence, that this bill would be a social experiment in North Carolina, for many states are struggling with this issue at the present time. Although there are rare exceptions, parental consent for unemancipated minors seeking medical treatment is consistent with standard medical practice. For us, as physicians, it does not raise difficult medical issues or infringe on the right of privacy or confidentiality between the patient and physician. In other areas of medicine, as in this emotionally complex one, the requirement of parental consent is designed to protect the minor and ensure that a mature judgment is made. To us, it is absolutely absurd to think that the adult physician who would be performing the abortion could substitute for a parent in counseling the minor, as Dr. Halperin suggests. Considering the operating physician's self evident stand on abortion and the profitable nature of performing it, he can hardly be considered an impartial counselor. It is a parent's right and obligation to provide this guidance. As parents, ourselves, we deeply oppose any measure that may further erode our opportunity and responsibility to teach our children what we believe to be proper values, especially in regard to such a morally charged issue. The data he presents seem to indicate that his law would not

significantly alter the sexual behavior of adolescents or change the number of abortions they seek. It is our opinion that any decrease in the number of abortions would be significant and any increase in the communication within the family would be positive changes for each of those involved.

Many of us have come to realize that the present abortion situation is not acceptable and have tried to look at ways to change this. Even with the recent Supreme Court action, the only way to significantly alter our present course would be through legislative means. This bill, with its judicial override provision, may be the best answer for our abortion problem in North Carolina at the present time.

We all realize the strategy of the Pro-Choice groups. Any who have seen the coat hanger ads in our newspapers and have received the Pro-Choice information in the mail have experienced first hand what they are trying to accomplish. It would seem these groups are not so interested in preserving a woman's right on this issue nearly as much as they are in protecting the multimillion dollar abortion business. We, as obstetricians-gynecologists, as well as all physicians, have been misled on this issue by society under the banner of women's rights and social progress. Not only have we permitted abortion to progress to its present state, we have actually lead the way in many respects. Unfortunately, from our personal experience in dealing with patients and their families, this has not been the best course of events. We have all seen the significant physical and psychological damage to our patients and their families promoted by abortion on demand. Therefore, although not well organized or vocal, we think there are physicians in North Carolina who have come to realize that a change in our abortion problem is needed. Some come to this because of their moral convictions. Others come to this realization because they understand that abortion on demand simply has not worked. Rather than an improved situation, we have increased unplanned pregnancies and rapidly spreading sexually transmitted diseases. The younger, more impressionable people need adult guidance, for they cannot see the long term consequences from their behavior. This bill would bring some accountability and some consideration of all consequences prior to beginning sexual activity. We recognize that this will not be an isolated issue and that reform in this area will have to be complemented by other societal reforms. We have to commit to the support of prenatal and newborn care, child support, and other adoptive services as well as sexual education and contraceptive research.

Again, we would like to personally state that we disagree with the position that the North Carolina Medical Society has taken on this bill and on similar abortion issues. We know that there are many other North Carolina physicians who are opposed to abortion and whose opinions need to be heard in balance of our colleagues on the other side of this issue. We should not cower from our responsibilities on addressing this issue because we are labeled as unprogressive and anti-women's health or rights. Abortion is not a women's rights issue but a human rights issue. The abortion

situation in this country will continue to change, and we should be leaders in this change. We must be prepared to support multifaceted, readily available, life saving alternatives to abortion.

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Gary A. Haakenson, M.D.
David Y. Henderson, M.D.
Thomas M. Roesch, M.D.

Medical ethics: on Dr. Davant's article and Dr. Alexander's comment

To Dr. Alexander:

First I should say that I do not write as a medical professional, but rather as an interested former and future patient. The reason that I write is that in these last few years I have come to be more and more interested in the way in which medicine is practiced in the United States, because it is both so good and so inadequate. However, I am not one that understands these problems as the sole responsibility of the medical profession. I see the problems as being multifaceted, needing to be addressed on many fronts at the same time. Insurance companies, the legal system, and the people who use them to get rich quick bear much of the responsibility.

But there is one particular problem in medicine that I do think is the responsibility of the medical profession and which seems to be actively ignored. Specifically, the problem is that those involved in working within medicine treat it like a closed fraternity, a club into which the general public is to be allowed only as a patient, and altogether too often as a patient who should be more than willing to pay very high fees for health services.

Now to the reason that I direct this letter to you.

In particular, I want to refer to Dr. Charles Davant III's article on the issue of medical ethics (NCMJ 1989;50:341-6; and Alexander A., Comment, 346). Very important issues concerning the inability and apparent unwillingness of the profession to regulate itself are raised in this work. An M.D. prescribing medication without ever seeing the patient (over a long period) and the Medical Review Board not seeming to be interested in what appears to be a long term and serious case of unethical and illegal practice.

Yet your comment on the issue indicates more concern with the fact that the case was brought to the attention of the public that reads the journal than the fact that it happened. As you state in the second paragraph, since the M.D. in question had been requested to meet with the Board of Examiners, you "felt that [the article] ... need not be published." In the last paragraph you again try to minimize the seriousness of the case by holding that the case constituted a "crack in the floor." But most indicative of your point of view is your opinion that the article is "shrill," thereby the reader should infer, hysterical. What is most interesting however, is that you never address the issue that is being raised in Dr.

Davant's article.

But I should add that in a sense I have to agree, the case noted by Dr. Davant is not in and of itself a serious problem. These cases will always exist, and people will continue to place undue faith in faith healers. But it is indicative of a serious problem: that the Medical Review Board let it go on for so long.

Additionally, your response, which is at best cavalier, is indicative of a larger problem, that of a willingness on the part of the medical profession to be offhanded toward the interests of the patients and cover for important flaws in the system. The continuation of abusive residencies, which are abusive of the resident and more importantly, the patient is a prime example. Without extenuating circumstances, no patient should agree to be treated by someone who has not slept in the last 20 hours.

The medical profession in the United States is in trouble, and it means trouble for everyone. Minimizing problems when they do arise, or ignoring those that already exist, only means that the problem will get worse. And what is potentially more destructive, opens the door for piecemeal legislation by self-interested politicians.

Martin Gonzalez
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Dr. Alexander's reply:

I have read in detail your extremely well directed and written letter. Although I feel that you have misinterpreted

my expressions, I do recognize the many frustrations that many people have with medicine in the present day with the complexity of things that are affecting all of us.

When I used the word "shrill," I did not mean that anybody was hysterical or that the "crack in the floor" was something that should not happen, but that Dr. Davant had had to raise his voice in order to get attention.

As a member of the Board of Medical Examiners, we were concerned about this case and, in fact, we do not have the power to arrest or to make people come before us. Our greatest statutory strength is in the ability to withdraw a license to practice medicine and to dispense drugs, and it was with this in mind that we sought to bring the person referred to by Dr. Davant before the Board.

When such things as this happen, they are the responsibility of the State Board of Investigation, and we constantly and repeatedly brought this to the attention of the State Board of Investigation without trying to shift the responsibility. That particular agency is busy and probably underfunded and apparently this particular case did not seem of a very high priority to them.

We appreciate your willingness to write your thoughts about this, and if I can answer any other of your questions, I will be glad to do so.

Eben Alexander, Jr., M.D.
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Place: Chapel Hill

Credit: TBA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

October 27-29

George Ham Symposium: Managing Patients with Anxiety Disorders and Substance Abuse Disorders

Place: Chapel Hill

Credit: TBA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

November 1-3

Responding to Environmental Health Incidents

Place: Asheville

Credit: TBA

Info: Christopher Cooke, Continuing Education Specialist, Office of Continuing Education, UNC School of Public Health, CB #8165, Miller Hall, Chapel Hill 27599-8165. 919/966-1104

November 2,3

Advanced Cardiac Life Support Provider Course

Place: Raleigh

Credit: 16 hours AAFP

Fee: \$150

Info: Helen Creech, R.N., Course Coordinator, Rex Hospital, 4420 Lake Boone Trail, Raleigh 27607. 919/783-3161

December 1-3

Winter Family Physicians Weekend

Place: Raleigh

Credit: 12 hours, AAFP

Fee: \$125

Info: Marietta Ellis, NC Academy of Family Physicians, P.O. Box 18469, Raleigh 27619. 919/847-6467

December 2

UNC Ophthalmology Residents' Day

Place: Chapel Hill

Credit: 6 hours Category I, AMA

Info: Ms. Christine C. Cotton, Department of Ophthalmology, CB #7040, 617 Clinical Sciences Building, UNC, Chapel Hill 27599-7040. 919/966-5296

February 1-3, 1990

Geriatric Update

Place: Research Triangle Park

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Authors interested in more effective writing may find *The Elements of Style* by Strunk and White and *How to Write and Publish a Scientific Paper* by Day helpful.

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VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

Contraindications: VASOTEC® (Enalapril Maleate, MSD) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

Warnings: *Angioedema:* Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

Hypotension: Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Heart failure patients given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in heart failure patients), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, *Drug Interactions* and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

Neutropenia/Agranulocytosis: Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Precautions: *General:* **Impaired Renal Function:** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

Evaluation of patients with hypertension or heart failure should always include assessment of renal function. (See DOSAGE AND ADMINISTRATION.)

Hyperkalemia: Elevated serum potassium (> 5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See *Drug Interactions*.)

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Information for Patients:

Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

NOTE: As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions:

Hypotension: Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

Agents Causing Renin Release: The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methyl-dopa, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

Lithium: A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. Although a causal relationship has not been established, it is recommended that caution be exercised when lithium is used concomitantly with VASOTEC and serum lithium levels should be monitored frequently.

Pregnancy—Category C: There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity seen at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not been clearly defined, VASOTEC® (Enalapril Maleate, MSD) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypertension, or the underlying prematurity.

Nursing Mothers: Milk in lactating rats contains radioactivity following administration of 14 C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Adverse Reactions: VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

HYPERTENSION: The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

HEART FAILURE: The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

Cardiovascular: Cardiac arrest; myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, *Hypotension*); cardiac arrest; pulmonary embolism and infarction; rhythm disturbances; atrial fibrillation; palpitation.

Digestive: Ileus, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis.

Nervous/Psychiatric: Depression, confusion, ataxia, somnolence, insomnia, nervousness, paresthesia.

Urogenital: Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

Respiratory: Bronchospasm, rhinorrhea, asthma, upper respiratory infection.

Skin: Herpes zoster, pruritus, alopecia, flushing, photosensitivity.

Other: Vasculitis, muscle cramps, hyperhidrosis, impotence, blurred vision, taste alteration, tinnitus.

A symptom complex has been reported which may include fever, myalgia, and arthralgia; an elevated erythrocyte sedimentation rate may be present. Rash or other dermatologic manifestations may occur. These symptoms have disappeared after discontinuation of therapy.

Angioedema: Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

Clinical Laboratory Test Findings:

Serum Electrolytes: Hyperkalemia (see PRECAUTIONS), hyponatremia.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g % and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

Other (Causal Relationship Unknown): In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported.

Liver Function Tests: Elevations of liver enzymes and/or serum bilirubin have occurred.

Dosage and Administration: **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, *Drug Interactions*.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily, the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

Dosage Adjustment in Hypertensive Patients with Renal Impairment: The usual dose of enalapril is recommended for patients with a creatinine clearance > 30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤ 30 mL/min (serum creatinine ≥ 3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

Heart Failure: VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, *Drug Interactions*.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, *Pharmacodynamics and Clinical Effects*.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

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For Doctors and their Patients

The College of Veterinary Medicine at North Carolina State University: Its Role in North Carolina's Health Care System

Wayne T. Corbett, V.M.D., Dr. P.H.

The Occupational Risk of Health Care Providers for Human Immunodeficiency Virus Infection

Charles Ellenbogen, M.D., FACP

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Spice as a Variety of Death— Black Pepper Can Be Lethal

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Published Monthly as the Official Organ of the North Carolina Medical Society

(ISSN 0029-2559)

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NORTH CAROLINA MEDICAL JOURNAL

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FOR DOCTORS AND THEIR PATIENTS

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The Occupational Risk of Health Care Providers for Human Immunodeficiency Virus Infection

Charles Ellenbogen, M.D., FACP

Are you reluctant to take care of Human Immunodeficiency Virus (HIV) infected patients? If you are, you join a large number of health care providers in the United States who are reluctant because of concern about acquiring the infection as they care for these patients. The purpose of this essay is to examine your occupational risk of HIV infection. I begin by examining HIV transmission in general.

After eight years of AIDS in the United States, the behaviors that place a person at risk for infection with the HIV remain unchanged. They are sex, use of needles, as with intravenous drug abuse, and being born to an infected mother.

But while the behaviors remain the same, their relative importance is changing. There has been a decrease in the prevalence of AIDS among gay and bisexual men. In 1987 70% of AIDS cases occurred among these men, but during 1988 only 63% occurred among men in these groups.¹ And during the year ending June 1989, only 57% of AIDS cases occurred among gay and bisexual men.²

While a part of this change is due to the revised case definition of AIDS introduced in September 1987,³ the major reason for the decrease is the changing behavior of these men.^{4,5} As they have seen lovers and friends around them dying of the disease, they have recognized the need to reduce high risk behavior by: (1) decreasing their number of sex partners, especially anonymous partners; (2) reducing the frequency of anal intercourse; and (3) using condoms if they do have anal intercourse.

Dr. Ellenbogen is Director of Internal Medicine, Fayetteville Area Health Education Center, Fayetteville 28304. Reprint requests: 1601 Owen Dr., Fayetteville 28304.

Transmission of HIV by Intravenous Drug Abuse

Intravenous drug abuse (IVDA), the second most common mode of transmission of HIV, has increased in prevalence. IVDA-caused AIDS cases in men increased from 14% of all cases in 1987 to 20% in 1988. Among women, IVDA as the only risk factor accounts for the majority of cases and is on the rise: 49% of AIDS cases in women in 1987 and 53% in 1988.¹ IVDA as a risk factor for AIDS is mainly due to needle-sharing with an HIV infected person. This mode of transmission is becoming increasingly important because methods of dealing with IVDA are few and minimally effective.

Transmission of HIV Among Heterosexuals

Heterosexual transmission is also on the rise, and it is rising rapidly. There was a 97% increase in heterosexually transmitted AIDS cases among United States-born patients between 1987 and 1988.⁶ Moreover, in the 12 months ending March 31, 1989, 41% of all of the heterosexual transmission cases since 1981 were reported, while only 36% of cases due to all other transmission categories were reported during that period.⁶ Further, the proportion of United States-born males with AIDS who acquired their HIV through heterosexual transmission increased from 0.5% in 1983 to 3.9% in 1988, and the proportion of United States-born females with heterosexually acquired AIDS increased from 14.8% to 25.6% during the same period.¹

There are two prominent reasons for the increase in heterosexual transmission cases. First, promiscuous sexual behavior remains unchanged among heterosexuals. Perhaps their personal risk of AIDS has not yet been brought home to them by

deaths due to AIDS among members of their own community. Second, IVDA is predominantly practiced by heterosexuals. Even if the virus is acquired by drug abuse, it can be passed on sexually.

In fact, IVDA has been the main mode of entry of HIV into the heterosexual population. AIDS due both to IVDA and to heterosexual transmission is on the rise. This suggests a trend which may, in a few years, produce a more heterosexual epidemic, similar to what happened among gay and bisexual men beginning seven to eight years ago.

Among children under the age of 13, 1,681 cases of AIDS have been reported through June 1989² (as compared to 98,255 cases among adolescents and adults). Nearly 80% of these children got HIV perinatally from their HIV-infected mothers. Thirty-eight percent of those children got AIDS perinatally between July 1988 and June 1989.² The mothers mainly got their HIV infection by IVDA or by being the sex-partner of an IVDA. Thus as AIDS cases transmitted heterosexually and by IVDA increase among adults, they also rise among their children.

Transmission of HIV by Blood Transfusion

Transmission of HIV by infusions of blood or antihemophilic factor has accounted for 3.6% of all AIDS cases reported since 1981.² Since the spring of 1985, all blood donors are screened for antibody to HIV. Once a donor is identified as being HIV antibody positive, she or he is permanently deferred from subsequent donation. As a result of such deferral, the prevalence of HIV antibody among voluntary donors in the second quarter of 1988 was only 0.010%.¹ Based upon both observed cases and estimated risk of transfusion transmitted HIV infection since screening began, the risk of any given unit of blood containing HIV varies from 1:33,000 to 1:40,000.^{7,8}

Antihemophilic factor is obtained from the same donated blood sources as are used for transfusions. Because of donor screening and viral inactivation of clotting factor concentrates, HIV transmission among hemophiliacs has now become very rare and is expected to decline even further.⁹

Assessing the Risk Categories

One of the ways of assessing how important these behavioral and other risk categories are is by assessing how many AIDS cases do not fit them.

Between June 1981 and the end of June 1989,² 5,468 (5.5%) of AIDS cases have been classified as undetermined in mode of transmission. Of these, 2,983 (55%) were recently diagnosed and have not yet had their epidemiologic investigation completed; 578 cases (11%) either died before an investigation could be performed, were lost to followup, or simply refused to be interviewed.

Of the remainder, 379* (7%) remained undetermined despite having an investigation completed. All of the 379 were adolescents and adults. Among them a high frequency of known venereal diseases (38%) and prostitute contact (33%) suggests possible heterosexual transmission.^{2,10} Nevertheless, the actual number of unclassified cases remains small, is not growing with time, and supports the absence of any substantial, unrecognized modes of transmission.¹⁰

Household Contacts of AIDS Patients

While it is important to know the behavior which places persons at risk for HIV infection, it is also important to know the behavior which does not result in transmission.

Many studies of household contacts of AIDS patients have been reported and they all have one conclusion in common. Transmission does not occur among non-sexual household contacts of AIDS patients. None of over 580 household contacts of 308 AIDS patients became infected with HIV despite having lived in the household with the HIV infected patient for from one to two years before the patient became ill.¹¹⁻¹³

Household contacts included children (many under the age of six years), brothers and sisters, parents, grandparents and other relatives. The risk of children under the age of six is particularly revealing precisely because they are normally so uncontrolled in their intimacy, and so unsanitary, by adult and medical standards.

Household contacts shared utensils, food, linens and bathroom facilities. When they were sick, they took care of each other. They hugged and kissed and made no effort to "protect themselves" against infection. You can best judge the intimacy of these household contacts by using the example of the intimacy among members of *your* household.

Yet despite prolonged intimacy, transmission of HIV did not occur.

Health Care Providers

Precisely because all of us are so concerned about our (and our family's) risk when we care for HIV infected patients, researchers have conducted extensive and detailed studies of the occupational risk to health care providers (table 1).

The first group of health care providers evaluated in these studies had experienced contamination of their non-intact skin (rash or cuts) or splash on their mucous membranes (mouth or eyes) by blood or bloody body fluid from known HIV-positive patients (most of whom actually had AIDS). Such contact resulted in no transmission.

The second group of health care providers evaluated had a needlestick exposure to an HIV-positive patient. The risk of HIV transmission by needlestick was 0.45%.

* The 38% of cases which remain were found after investigation to belong to one or another traditional risk group.

To put this risk in perspective: before hepatitis B vaccine was available, the risk of transmission of the disease as a result of a needlestick exposure to a hepatitis B antigen-positive patient was as high as 30%.¹⁴ Thus, hepatitis B is about 60 times easier to get by needlestick than HIV.

The probable explanation is that free virus is present in the blood of hepatitis B antigen-positive patients at logarithmically higher levels than HIV is present in the blood of HIV-positive patients.

Similarly, one study found that out of 1,309 dentists, dental technicians and dental hygienists who infrequently, if ever, used precautions in their practices, only one was HIV positive.¹⁵

Further insight into the risk to health care providers can be gained by examining AIDS cases among this population.¹⁶ The most recent summary data is, regrettably, a year old. Nevertheless, it shows that 5.4% of all cases of AIDS reported to the CDC by occupation were health care providers. Based upon census

data, this is the same as the proportion of health care providers in the general population: 5.7%. Of these AIDS cases, 94.7% could be clearly classified into one of the usual transmission categories. Of the remaining 5.3%, over half had been diagnosed within the previous year and were still under investigation. For those whose transmission investigation was complete, 41 could not be reclassified into one of the usual categories. Sixty-eight percent of the 41 were men, whereas 23% of persons employed in hospitals and health service in the United States are men.

This group of 41 health care providers was comprised of eight physicians, four of whom were surgeons; one dentist; five nurses; eleven nursing assistants or orderlies; seven housekeeping or maintenance workers; four clinical laboratory technicians; one respiratory therapist; one paramedic; one mortician; and two others who had no contact with patients or clinical specimens.

Table I
Occupational Risk of HIV Infection Among Health Care Workers (HCW)

Source & Date	Total HCWs	HCWs by Exposure	Hiv + (%)
CDC 31 July 88 ¹	963	NS ² =860 MM ³ or NIS=103	4 of NS (0.47%) for total (0.42%)
San Francisco General Hospital 30 Sept 88 ⁴	118	72 NS 46 MM or NIS	1 of NS (0.6%) by exposure (0.78%) by total HCW (0.28%) by total exposures
NIH 30 Sept 88 ⁵	651	127 NS 241 MM 283 NIS	1 of NS (0.78%) (0.69%) by exposures
Other Studies presented incompletely ⁶	1967	not specified	none
Total	3709		6 of NS (0.45%) by HCW (0.43%) by event (0.17%) overall

1 Marcus R and the CDC cooperative needlestick surveillance group. Surveillance of health care workers exposed to blood from patients infected with the human immunodeficiency virus. *N Engl J Med* 1988;319:1118-23.
2 NS means needlestick exposure, or injury with some other sharp object such as a scalpel.
3 MM means mucous membrane, NIS means non-intact skin exposure to blood or bloody body fluid.
4 Gerberding JL, Littell CG, Chambers HF, et al. Risk of occupational HIV transmission in intensively exposed health care workers (HCW). Abstracts of the 1988 ICAAC. Los Angeles, CA, 23-26 October 1988. Abst # 343.
5 Henderson DK, Fahey BJ, Saah AJ, et al. Longitudinal assessment of risk for occupational/nonsocomial transmission of human immunodeficiency virus, type I in health care workers. Abstracts of the 1988 ICAAC. Los Angeles, CA, 23-26 October 1988. Abst #634.
6 Fahey BJ, Willy ME, Meehan PE, et al. Frequency and intensity of cutaneous exposure (CE) to blood and other body fluids (B/BF) in hospital-based health care workers (HCW). Abstracts of the 1988 ICAAC. Los Angeles, CA, 23-26 October 1988. Abst # 635. Presented with data in 5 above.

If one compares the occupations of these 41 health care providers with those of health care providers for whom both HIV transmission risk factors and occupation were known, the only occupation significantly more likely to have an undetermined risk was maintenance worker. It is true that 17 of the 41 health care providers with undetermined risk (including two of the seven maintenance workers) had a history of needlestick exposure, but none of the exposures were to known HIV-positive or AIDS patients.^{1**} Thus, health care providers had no evidence of unexpected or unrecognized transmission risks.

Published experience outside the United States is less extensive. The largest study to date was of HIV seroprevalence among 2,002 employees of the Mama Yemo Hospital in Kinshasa, Zaire.¹⁷ In 1986 the highest seroprevalence of antibody to HIV at this site was among manual laborers (11.8%), who had no patient or patient specimen contact. The lowest seroprevalence was among laboratory technicians (2.9%) with frequent exposure to patient specimens. Physicians (5.6%) and top administrators (5.4%) had similar seroprevalence. A study of sexual contact, well documented in other studies as a major risk factor in Zaire,¹⁵ was not done among these providers. Among the risk factors studied, the strongest association of infection was with transfusion, probably related to the absence of routine donor HIV screening in Zaire at the time of this study. Thus, in Zaire as in the United States, patient exposure was not an identifiable risk factor for HIV infection.

Universal Blood and Body Fluid Precautions

The United States health care provider's risk of HIV infection from a needlestick exposure to a known HIV positive patient is low at only 0.45%. But while very low, it is not zero. So what can one do to lower it even further?

Both North Carolina¹⁹ and Federal²⁰ law require that all patient care be provided using Universal Blood and Body Fluid Precautions. These precautions were derived from those successfully used, beginning in the 1970s, to protect health care providers from infection by hepatitis B virus. Since the precautions appeared to work in protecting health care providers from a virus that is 60 times easier to get than HIV, they can be expected to work against HIV.

The details of Universal Blood and Body Fluid Precautions are published elsewhere.²¹ The basic elements of these precautions are as follows.

First, *think* about what you will be doing and the opportunities for exposure of any part of your body to blood or bloody

body fluid. *Plan* to protect yourself.

Second, basic protection begins with *washing your hands* immediately after patient contact and wearing *barrier body coverings*: gloves, goggles (e.g., for bronchoscopy or surgical procedures), face masks, gowns and so forth, whenever patient care presents the opportunity for exposure.

Obviously, such precautions are not needed when your only contact is talking to, bathing, or feeding the patient, or other routine, non-invasive contact. It is not necessary to mask and gown just to go into the patient's room. If a six-year-old child cannot get it from an adult in their household, you cannot get it by that level of intimacy either.

Third, the single most dangerous patient-care activity for creating a risk of HIV transmission is use of needles or other sharp devices.

Therefore: *never recap needles* after giving injections or drawing blood. **WEAR GLOVES.** Have needle disposal boxes—rigid and impervious—within arm's reach at all times so you do not have to worry about how to handle the needle. When inserting, manipulating or changing intravenous setups, **WEAR GLOVES**; do one thing at a time so that you maximize control over the needle(s).

Use of disinfectants effective against HIV is also important.^{22,23} Sodium hypochlorite—common household bleach of any brand—is a highly effective disinfectant of HIV. To reduce the amount you need it is both safe and effective to use the bleach diluted one part bleach to nine parts water, that is, 1:10. A fresh solution should be prepared daily.

Other effective disinfectants include glutaraldehyde^{22,24} and phenolic disinfectants such as Lysol.²³ Lysol® must be used in a higher concentration than is available in the spray cans found on grocery shelves for cleaning in the home. But other, routinely used concentrations of such phenolics are highly effective.²³

Both povidone-iodine preparations and chlorhexidine are also effective against the virus.²⁵ Recent data, however, suggest that alcohol preparations may not be dependable for disinfecting HIV.²⁴

HIV is heat²³ and detergent sensitive, so that routine, high temperatures used in dishwashers and hot-water clothes washing cycles and clothes dryers are lethal to the virus.

A Strategy for Health Care Providers

The following strategy applies to all health-care providers, but especially those who are not clearly provided for in the precautions as written. These include home health nurses and other staff, emergency medical technicians (EMTs), and firefighters and police who may be expected to act as health care providers because they are first responders. Such individuals should carry a kit with them on the job to deal with blood and bloody body fluids. The kit should contain:

** More limited data reported through June 1989² indicate that of 51 health care workers with undetermined mode of transmission, 54% reported needlestick or mucous membrane contacts, but none to HIV positive patients.

- 1 Bleach. Clearly marked containers should include a use solution, diluted 1:10 freshly each day, and a stock supply of undiluted bleach for backup.
- 2 Gloves. Sterile latex gloves, packaged in individual pairs, are preferable, but more expensive. Bulk-packaged latex gloves are superior to bulk-packaged vinyl gloves because the latter are more likely to tear, or to be torn or damaged already.
- 3 Paper towels.
- 4 Small, sealable bags such as Ziplock® bags.
- 5 Larger bags, such as garbage bags, with drawstring-like closure.
- 6 Masks and goggles, if the job requires exposure to blood while working in such settings as auto accidents.
- 7 Peroxide.

To envision these materials in action, consider the scenario of a large quantity of possibly HIV-positive blood or bloody body fluid contaminating the environment; some of it is on objects or the floor, and some is on people. Here is how to clean it up.

Wearing gloves, layer paper towels over the spill on the floor and on objects. The layer should be two or three towels thick. The object is to retard further spread of the spill and to soak up and hold the bleach. Soak the layered and bloody towels with the 1:10 bleach solution.

Use the peroxide, straight out of the bottle, to clean blood and bloody body fluid off skin. Although regular soap (especially povidone-iodine or chlorhexidine-containing preparations) and water are sufficient, I am assuming a situation in which soap and water may not be available. If mucous membranes of the mouth have been contaminated, peroxide mouth swishing may be safely used.

The bleach-soaked towels, which by now have been soaking for five to ten minutes, may be collected and disposed of in the garbage bags for subsequent discarding (remember, the virus is now dead). If objects or materials must be saved for evidence or other purposes before disinfections, and not be washed or otherwise handled beforehand, use Ziplock®-type bags. They permit the contents to be seen and are impervious so that others can handle them and their contents safely.

Public safety officers are reminded that contact with patients or others—such as marchers or protesters on the street—represents no danger. Use of long, encumbering gloves is not only unnecessary, but may impede your function.

The precautions suggest avoiding mouth-to-mouth resuscitation. Various portable products are marketed to permit effective mouth-to-mouth resuscitation with one-way valves between you and the patient so that blood or bloody fluid from the patient's mouth or nose is avoided. Examples of such products include the Sealeasy Resuscitation Kit #34400 marketed by Respirationics, Inc., of Monroeville, PA (412/373-8114) and the Resuscitator with mask, filter and one-way valve marketed by Intertech Resources, Inc., of Bannockburn, IL (312/940-7789). Although I personally prefer the former, both are excellent devices, and there are others. Contact your medical supply house.

Mosquitoes and AIDS

Why bring up mosquitoes in a discussion of the risk to health care providers? The answer is that mosquito transmission seems to resemble the needlestick risk to a health care provider, considering that mosquitoes transmit other blood-borne viruses such as dengue and yellow fever.

In 1985 a very high rate of AIDS was discovered among citizens of the town of Belle Glade, Florida.²⁶ The proportion of cases that fell into the undetermined transmission category was 8%, compared with the 5% rate among cases reported from the rest of the country. Mosquito-borne disease is common in South Florida, and the possibility of mosquito-borne HIV was entertained. Therefore a study of HIV transmission in Belle Glade was undertaken. The major findings were as follows:

37% of AIDS cases could be directly linked to one another by sexual contact, intravenous drug use with needle sharing, or perinatal transmission.

AIDS cases were significantly more likely than HIV-negative control subjects to have a history of venereal disease other than HIV, sex with a large number of partners, prostitution, or sex with an IV drug abuser.

There were no cases of HIV infection in children between the ages of two and ten years, or in adults over the age of 60.

67% of a 5% random sample of Belle Glade citizens were black, 14% of these being Haitian. All HIV seropositive persons were black, and slightly over half of them were Haitian.

A survey of mosquito exposure focused on antibodies to known mosquito-borne pathogens, such as dengue, St. Louis encephalitis virus, Tensaw, and other arboviruses common to the Caribbean area. There was no difference in the seroprevalence of these agents between HIV-infected and HIV-negative persons. In fact, in a few instances there was a trend to greater exposure to these viruses among HIV-seronegative persons.

Thus, in Belle Glade there was not only no evidence to support mosquito transmission of HIV, there was evidence against it. Mosquitoes do not limit themselves to blacks between the ages of 10 and 60.

Other studies in Haiti and Africa have similarly failed to show a relationship between HIV infection and mosquito-borne disease such as malaria.²⁷ Malaria is a disease of the countryside while HIV is a disease of the city.

Recently in Zaire the possibility of a relationship between malaria and HIV infection was raised again by a 10% rate of HIV infection among 112 children hospitalized with malaria.²⁸ Their HIV infection was found to be associated not with malaria, but with the transfusions used to treat the severe anemia it caused, because routine donor screening for HIV was not being done.

Finally, a recent study of arthropod transmission of HTLV-1, a distant relative of HIV, further supported the finding that insects do not transmit these bloodborne viruses to humans.²⁹

Conclusion

In the eight years of the AIDS epidemic there have been no new modes of transmission discovered, despite looking hard all over the world.

As a health care provider, you *can* be at risk for occupational infection with HIV. But the risk is low and you can take steps to prevent infection. It is certainly appropriate to be worried about AIDS and its possible effect on you and your family. But occupationally acquired AIDS needs to be looked at in perspective.

First, occupational hepatitis B is a much greater danger. Hepatitis B is a blood-borne virus transmitted in exactly the same way as HIV. Over 200 health care providers die of occupationally acquired hepatitis B complications each year in the United States.²⁰ And this is despite the fact that an effective and safe hepatitis B vaccine has been widely available for nine years. Moreover, while as many as 30 health care providers may have occupationally acquired HIV infection,¹⁴ no health care provider has died of occupationally acquired AIDS, although one physician is ill.²

Second, we know the health care activities which place health care providers at the greatest danger of acquiring HIV.^{21,30} And while it is true the Universal Blood and Body Fluid Precautions cannot guarantee complete protection,³¹ we also know that they are often poorly enforced, which means that any benefit to be derived is dissipated.

Finally, health care providers' fears need to be given more credence. While fear may be subdued by facts, fear cannot be conquered by facts and rational arguments alone. In addition to effective enforcement of Universal Blood and Body Fluid precautions and provision of hepatitis B testing and vaccine programs, employers of health care providers need to furnish more provider support programs aimed at helping all of us live and provide care to our patients with both minimal risk and minimal fear.³² □

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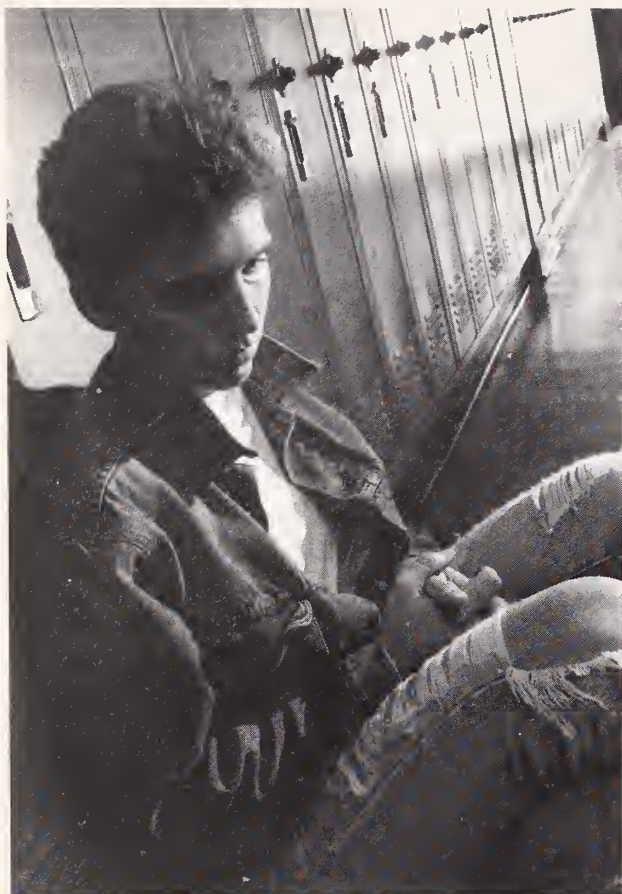
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The College of Veterinary Medicine at North Carolina State University

Its Role in North Carolina's Health Care System

Wayne T. Corbett, V.M.D., Dr. P.H.

Visions from James Herriot's *All Creatures Great and Small* or a Norman Rockwell painting with kids and dogs are conjured up in one's mind when the words "veterinary medicine" are uttered. Yes, veterinary medicine is represented in these images, yet veterinary medicine is much, much more. Therefore, when the editor of the *North Carolina Medical Journal* asked me to write an article on the College of Veterinary Medicine at North Carolina State University (NCSU-CVM) and the role veterinarians play in our North Carolinian society and health care system, I willingly accepted. Though this appeared an easy task on first thought, it proved more difficult as I began writing, primarily due to veterinary medicine's diversity today. I narrowed the scope of the paper to focus mostly in areas of direct concern or interest to the human medical community. Thus, those areas for which veterinary medicine is more traditionally known (e.g., caring for your pet) will be touched on only briefly.

Animal Health, Public Health

Central to the task of veterinary medicine is a point that the non veterinary public may not be aware of—one that is stated clearly in the oath that veterinarians take upon graduation. The oath states, "I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, ... the promotion of public health" It is clear that a main thrust of the College of Veterinary Medicine is to benefit society and promote human health by providing a healthy animal population. Such effort takes many paths at North Carolina's College of Veterinary Medicine.

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Service

Beginning with the hospital or service mission of our college seems appropriate. Presently, our companion animal component (dogs, cats, equine, avian) has over 13,000 hospital admissions per year, and the food animal component (cattle, swine, poultry) through our field service sees over 128,000 individual animal cases per year from herds totaling nearly 1.5 million animals. We act as a referral center not only for North Carolina's veterinarians, but also for those in states as distant as New York, Florida, and Tennessee. Animals at our college are seen by a variety of specialists in areas such as cardiology (2 tenure-track faculty [TTF]), ophthalmology (2 TTF), dermatology (2 TTF), oncology (1 TTF), neurology (2 TTF), orthopedics (3 TTF), soft tissue surgery (2 TTF), theriogenology (2 TTF), animal behavior (1 TTF), and internal medicine (4 TTF). These specialty areas are further supported by clinical pathology (2 TTF), pathology (6 TTF), clinical microbiology (2 TTF), clinical virology (1 TTF), clinical pharmacology (2 TTF), anesthesiology (3 TTF), and radiology (3 TTF). Internships and residencies, totaling 40 at present, are available in all clinical specialties.

Most of the work carried on in this hospital setting is similar to that performed by the readership of this journal. However, what may not be appreciated is the time—approximately one-fourth to one-third of the business day, depending on the discipline—spent on consideration of human disease problems. Our faculty, as well as your neighborhood veterinarian, disseminate information on zoonotic diseases, and consult with physicians concerning possible prognosis, prevention, intervention, and diagnostic issues of zoonoses. For obvious reasons, veterinary training in zoonoses is extensive and prepares us to be actively integrated into the human health care system. Among the "hot" zoonotic diseases of current relevance are cryptosporidiosis, toxoplasmosis, Lyme disease, rabies, encephalitis, visceral larva migrans, and Rocky Mountain spotted fever.



Figure 1. Overview of the physical facilities of the College of Veterinary Medicine.

The following two examples of typical situations will show how the veterinary profession interacts with the human medical community related to zoonoses.

First, an owner of a cat calls. She explains that her cat caught a bat, which the North Carolina State Diagnostic Laboratory subsequently diagnosed as rabid. Unfortunately, while waiting for the diagnosis, the cat bit the woman, and her doctor advised her to undergo a series of prophylactic rabies injections. For obvious reasons, this patient began to panic, trying to obtain information from any source she could, whether a health professional or not. This led to confusion on her part and a firm conviction that she would die from the injections or from rabies itself. In her mind, she was a statistic on the wrong side of the ledger.

Generally, in cases with an animal etiology or source of disease, a veterinarian is consulted at some point, and in this case, it was me. On hearing the caller's excited and agitated state, it appeared that a heart attack might precede either of her other two death concerns and, by necessity, become an initial focus. From her answers to questions about the type of bite wound, how she handled the bat (e.g., using protective gloves and/or baggies), time interval between the removal of the bat and the bite, and what she did after the bite (e.g., washed hands thoroughly), it was clear that her chance of developing rabies was minimal and not a foregone conclusion as she thought; so

from our conversation she calmed down some and the risk of a heart attack abated. The next step was to consult with her doctor, relaying all information and assisting in making an appropriate decision. Here, we arranged for a conference call involving the patient, the Environmental Epidemiology Branch of North Carolina Health Services* (which makes determinations in North Carolina related to rabies cases), the Centers for Disease Control* in Atlanta (which makes the definitive decision in most cases in the U.S.), the doctor, and the College of Veterinary Medicine faculty member. Fortunately this scenario had a positive outcome.

Another example of the daily D.V.M./M.D. interaction concerns the back-to-nature movement seen in many parts of the country today. In the extreme phases of this movement, everything must be "ala naturale." A physician calls the College of Veterinary Medicine and relates that her patient wants to feed a newborn baby raw goat's milk and wants to know if there are any particular health concerns. Obviously, the answer is affirmative. Besides routine bacterial organisms (staphylococcus, streptococcus, etc.), diseases such as Q fever, tularemia, contagious ecthyma, tuberculosis, and brucellosis are public

*Environmental Epidemiology, 919/733-3411; Centers for Disease Control, 404/329-3311.

health issues to be considered. We discussed the implications and course of action in order to provide the doctor and her patient with sufficient information to make an informed decision to minimize the risk of infection.

Clearly, as these examples show, one of the indirect benefits of such interactions between the health care system and the veterinary profession is the effect on the mental health of society in general and your patients in particular. This aspect does not go unnoticed by our profession and is the part that makes James Herriot's stories so touching. Further, our college is engaged in more specific research in this light associated with the field of pet therapies, for the elderly and handicapped, which adds to our sensitivities broaching the human/animal bond. Our role in this arena of the human health care system is expanding.

Research

Besides the service mission, our College of Veterinary Medicine, being a land-grant university, is also engaged in research and teaching as our other two missions. Of our 107 faculty, 82 faculty are principal investigators on 138 grants, contracts, or agreements. This includes 10 subcontracts with six universities and support from 15 separate companies. The total fund allocations pending and awarded this year exceed \$19 million for research. The topics investigated in this research are broad, with most projects dealing with animal diseases that have human implications. Thus, we gain knowledge of both animals and humans.

Rather than listing all the College of Veterinary Medicine awards to show the extent of topics, I will describe a few diverse projects.

One of the unique research centers at the College of Veterinary Medicine is the Laser Biology Unit. Here, we are investigating the potential of this technique in a variety of treatment modalities. One of the more exciting laser procedures with potential immediate benefits is in autologous bone marrow transplants in a leukemic mouse animal model. Briefly, with this photodynamic therapy, neoplastic cells in bone marrow aspirates selectively take up a laser-sensitive dye, which, when exposed to laser light, destroys the leukemic cells while leaving normal cells unharmed. This therapy has the potential for markedly improving autologous bone marrow transplants by eliminating residual neoplastic cells, and also could make autologous transplants more feasible for many cancer patients without HLA-matched donors. As an evolution of this work, a joint collaboration with faculty from Duke University Medical School has been established for further investigation of photodynamic therapy in human cancer patients. Additionally, the Laser Biology Unit is actively involved in research utilizing laser energy in the treatment of glaucoma; laser surgery for the removal of nasal and upper airway tumors; photovaporization of small tumors with Nd:YAG laser; photodynamic laser therapy in onchocerciasis; CO₂ laser application to skin tumors and wound healing; fiberoptics and laser therapy; and the effective-

ness of the photosensitive dye phthalocyanine in photodynamic therapy.

Another center that typifies the type of work being undertaken at NCSU-CVM is the Orthopedic Research Group. Here active (funded) research projects are underway in bone grafting (ceramics such as hydroxylapatite and tricalcium phosphate, allografts, autografts, etc.), joint replacement (cementless total hip, biomaterials in total joint replacement, etc.), and osteochondrosis.

The Orthopedic Research Group is made up of D.V.M.s (Board Certified Veterinary Surgeons, Board Certified Anesthesiologist, and D.V.M./Ph.D. pathologists), Biological and Agricultural Engineering (BAE) faculty, histology and research technicians, and graduate students (both CVM and BAE). Research in total joint replacement addresses the need for better technology to help clinical patients and, at the same time, develop good models for nonclinical research in new materials, surface textures, etc. Animal models are being used to evaluate various composites, surface textures on metals, and new, innovative osteogenic materials. The bioceramics are being used to evaluate various composites, surface textures on metals, and new, innovative osteogenic materials. The bioceramics are being evaluated for their applicability in bone grafting. This would be of great benefit in limb sparing procedures where cortical allografts (banked bone) or massive cancellous grafts are needed to replace the excised tumor and associated bone. We are also examining the use of bioceramics as surface coatings on cementless total joint implants. The implication is that the bioceramic will encourage a more rapid and perhaps more stable long-term fixation. Thus, the total hip prosthesis becomes a final testing model, once a material or surface configuration shows promise.

Other centers of research at our college, which involve our faculty and faculty from other universities, include: Core Center for Diarrheal Diseases, Cancer Therapy Center, Center for Cutaneous Pharmacology and Toxicology, FACS/Hybridoma Center, and Core Center for Visual Research. Again, work done by these Centers is beneficial to animals and humans alike.

Since many animal diseases parallel those seen in humans, we are constantly striving to identify *naturally* occurring animal models of human disease. Research examples in this area at the College of Veterinary Medicine include Rocky Mountain spotted fever, Lyme disease, various cancers, and Duchenne's disease. I will expand on only one animal model disease, a disease that is on everyone's mind today, AIDS. Three potential animal models in three different species (horse, cow, cat) have been identified. Of these models, cats infected with feline immunodeficiency virus (FIV) hold the most promise for future investigations. This is because the natural history of FIV is similar to that of HIV in humans, including seroconversion without clinical signs, latent periods, and overt clinical signs. The clinical signs are particularly interesting in that they practically duplicate those seen in humans (especially ocular signs, neurologic signs, and death). Researchers are currently investigating cellular and molecular changes, documenting

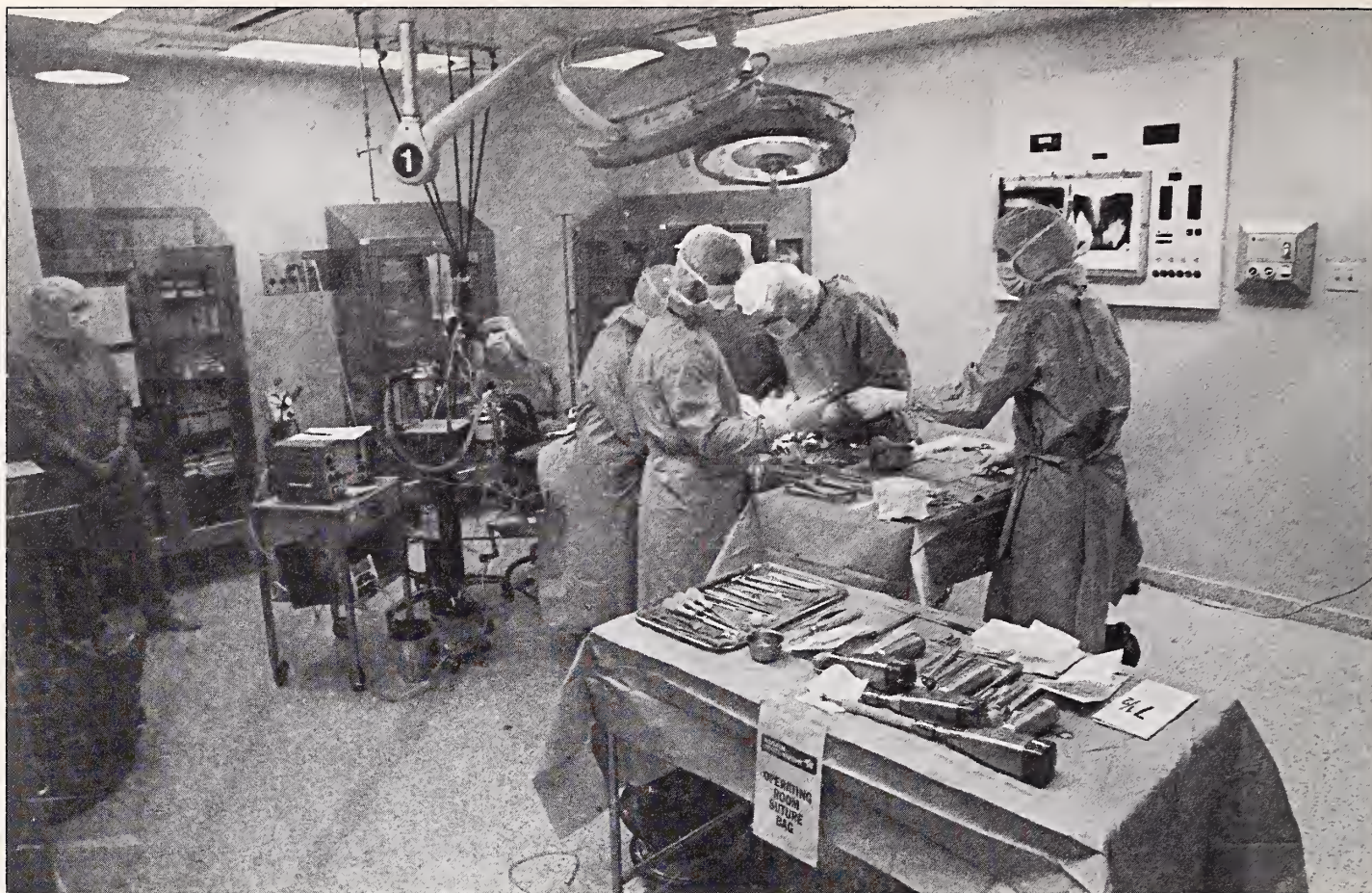


Figure 2. Orthopedic Research Group performing hip replacement.

clinical manifestations and spread of the disease, characterizing antibody profiles, and defining pathogenic mechanisms and environmental factors that might impact on treatment regimens.

Other areas of research focusing on animal models or infectious diseases at our College of Veterinary Medicine include: platelet-activating factor and respiratory mucin secretion; an animal model of drug-induced systemic lupus erythematosus in the cat; canine gastric dysfunctions; leukocyte mediation of benign prostatic hyperplasia; anthelmintic resistant strains of nematode parasites; an animal model of hepatitis B infection in ducks; cloning and expression of Newcastle disease virus surface proteins; effects of copper and aspirin treatment on ocular inflammatory response; canine ehrlichiosis in North Carolina, a new zoonosis; and dirofilariasis in the dog as a model for elephantitis. I included this brief list, which is by no means exhaustive, to indicate the variety of work being undertaken at our college.

Environmental Studies

Part of our work at the College of Veterinary Medicine would come under the heading of environmental studies. Most of these endeavors center around our nationally recognized toxicology initiatives. In an investigation of drug residues in the food we

eat, the veterinarian's goal is to help produce food that is not tainted with any residues (e.g., antibiotics, toxins) that might harm humans in any way. A big order. Meat hygiene has changed to the point that consumers often take for granted the wholesomeness of their food, and for the most part, they should. Yet, as society changes, the threats to our food chain change, and constant surveillance is a necessity. The time is nearing, however, through the work at our college and others in collaboration with industry, when you will be able to purchase food with a label saying something like, "This food is guaranteed to be bacteria, virus, and residue free." This is a long way from the scenario in Upton Sinclair's book, *The Jungle*.

Utilizing pet animals and livestock as sentinels of our environment is another recent development at our college. Clearly, animals are often in much closer contact with the ecosystem we inhabit than we are, and, as a result, can act as an early warning system for us. When alarming environmental issues surface, such as toxic waste, nuclear power, fertilizers, herbicides, lead contamination, and environmental carcinogens, how can citizens know whether there truly is no problem in the environment? After the fact, when many people are ill, it is too late. Therefore, as a first step to address this concern, a collaboration with the North Carolina Health Services Environmental Epidemiology Branch is being pursued. Our hope is to set up a network through which selected animals will be monitored over time to provide clues to possible breakdowns in

the ecosystem, so that action can be taken before a catastrophe occurs. Feed, grass, soil, blood and urine will be sampled and tested for appropriate agents, potentially becoming a preventative early warning system for humans.

Other toxicological studies emanating from our college include: the effects of low-level mycotoxin ingestion in animal production and its potential carcinogenic action; studies of the drug interactions of propranolol and calcium blockers; zinc nutrition and metabolism by the eye; decreased body weight after exposure to *Cassia obtusifolia*; acute lung injury during endotoxemia; development of transdermal drug delivery system to evaluate environmental exposures; studies of the lung barrier structure/function and biochemistry/pharmacology altered by the environment; methimazole pharmacokinetics; gentamicin pharmacokinetics; and altered epidermal morphology secondary to lidocaine iontophoresis.

International Programs

As the world shrinks, a global view of society becomes mandatory, and the College of Veterinary Medicine has developed directives to this end. Through its International Programs Committee, the College has initiated traditional academic programs along with those considered nontraditional. Our major focus has been on environmental epidemiology, animal production, and zoonoses. Technology transfer through educational programs and research projects would fall under the traditional category. This need is still present and must not be shirked by academic institutions. Projects in this area at the College of Veterinary Medicine fall under titles such as Feasibility Study on Animal Health Information and Data Monitoring Systems for CARICOM (Caribbean community), Suriname Health Service Project, and Training Program and Diagnostic Laboratory Techniques for Health Professionals.

The nontraditional phase of the College of Veterinary Medicine's program involves the training of U.S. veterinarians for international careers, developing data base/technological assessment services, and promoting North Carolina agriculture internationally. To this end, the College of Veterinary Medicine houses the only center in the world directed at training veterinarians in International Veterinary Public Health. This is a collaboration center with the World Health Organization. Additionally, our center brings together industry, government, and academia in order to develop new paradigms to help U.S. agriculture function better in the global marketplace.

Our international program is based on the premise that all parties participating should benefit. Thus, due to the major areas of focus—environment, zoonoses, food production—we recognize the global importance of the program. We hope our impact can help reduce world hunger and poverty, including that in the U.S.; enhance national security by stabilizing agriculture economies abroad, thus decreasing poverty/hunger in this hemisphere; and increase the potential for greater participation in the global marketplace. The College of Veterinary Medicine's primary involvement has been in this hemisphere,

where the impact can be more immediate, and has included projects with 12 countries. However, we do have faculty working in other geographic regions including China, Japan, and some African countries.

In relaying some of what we do and how we interrelate with the human medical community, it seems appropriate to provide some facts and figures about our college for general information. The college was established on paper in 1979, our first class was admitted in the fall of 1981, and official dedication took place in April 1983. The college is one of 27 veterinary medical schools in the U.S. and four in Canada. It stands on 170 acres in west Raleigh with a 300,000-square-foot main building. This building contains the Veterinary Teaching Hospital, 44 research laboratories, four research operating rooms, 14 clinical operating rooms, 16 examination rooms, and nine classroom and teaching laboratories.

Our student body is comprised of 288 D.V.M. students, 40 interns and residents, and 50 Master's and Ph.D. candidates. To date, we have graduated 217 students from four classes. Each class starts with 72 students, except for our first two classes, which initially enrolled 41 each. The NCSU-CVM faculty this past year produced 197 original research articles in refereed journals, 90 review articles or book chapters, 150 abstracts and articles in nonrefereed journals, three books, and 149 invited and 63 noninvited presentations. These numbers, along with those from the research section of this paper, indicate why the writing of this article was not an insignificant mission.

In addition to the many veterinary specialty associations to which our faculty belong, the human medical community may be interested to know that our faculty also are members in groups such as the American Heart Association, American Cancer Association, American Public Health Association, Orthopedic Research Society, American Society of Tropical Medicine and Hygiene, Society of Epidemiological Research, International Society and Federation of Cardiology, Association for Research in Vision and Ophthalmology, American Association for Advancement in Science, Radiological Society of North America, American Society for Therapeutic Radiology and Oncology, and American Society for Microbiology.

In writing this overview of the College of Veterinary Medicine's activities to inform the human medical community as to our functions and roles in North Carolina, I chose the path that I did to meet the editor's request. I hope that this has been informative. But more importantly, I hope it stimulates the desire to learn more about our college's activities, creates a nidus spawning more collaborative interactions, and clarifies the image of veterinary medicine in the North Carolina human medical community. To foster these possibilities, I will end with a list of telephone numbers that may prove of value.

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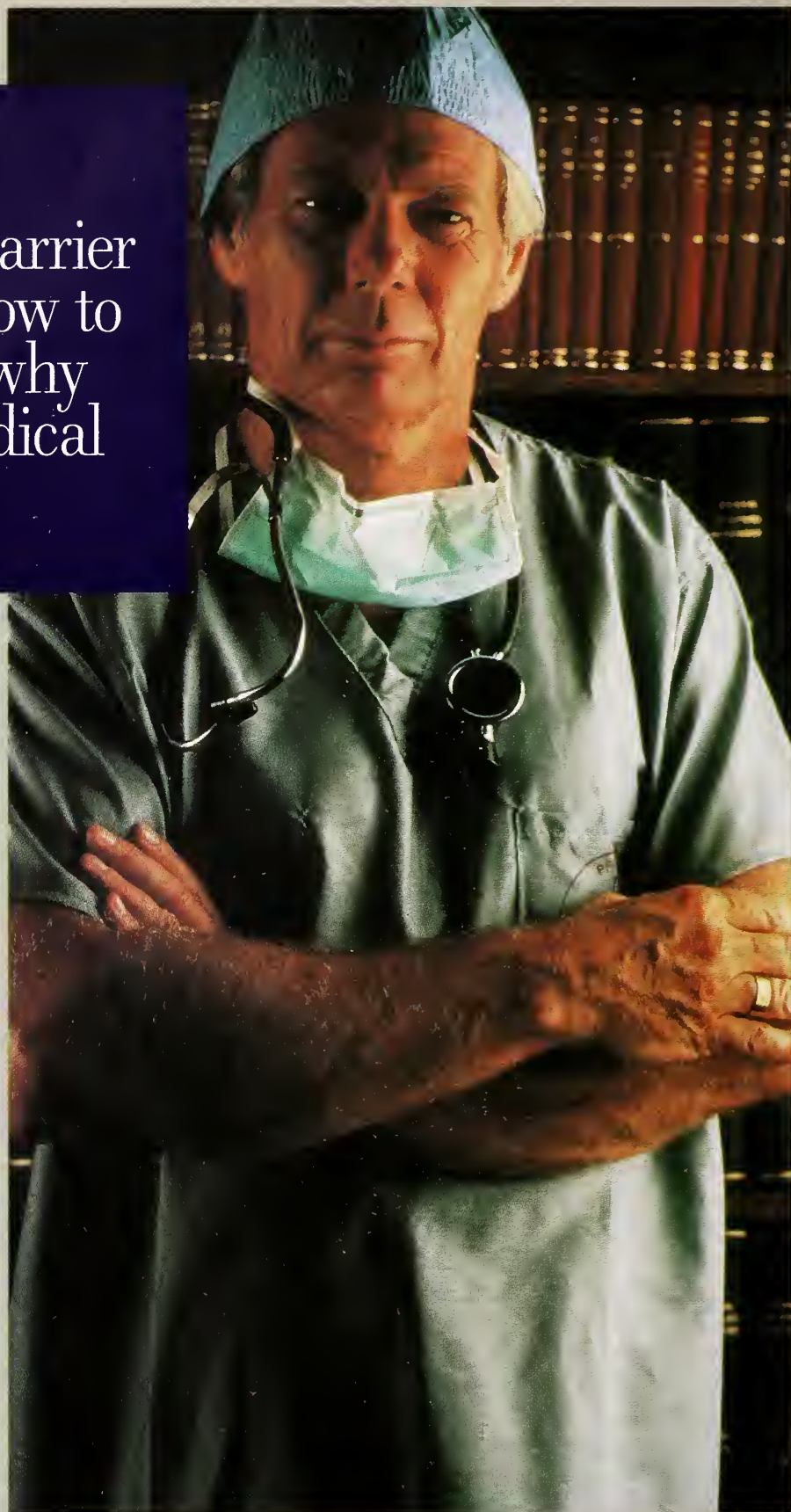
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Edward C. Halperin, M.D., Book Review Editor

***Care and Punishment: The Dilemmas of Prison Medicine*, by Curtis Prout and Robert N. Ross. Pittsburgh: University of Pittsburgh Press, 1988, 276 pp. \$24.95 clothbound; \$12.95 paperback.**

Reviewed by Ted Chandler, M.D., Wake Forest University Medical Center, Winston-Salem 27103.

The late 17th and 18th centuries were characterized by belief in the value of the individual, the power of human reason, and changes in political, religious and educational doctrine. In the "Age of Enlightenment" there were many changes in the care of criminals and prisoners. Policies of beheading, hanging, torture chambers, and banishment began to be abandoned. Gradually, more and more prisons came into being, among these the Tower of London, the Bastille, and, eventually, the United States system including Alcatraz, Sing Sing, federal prisons, and state and county jails.

Society added the new goal of correction of the offender to the traditional goal of punishment. All the deficiencies of criminals were to be offset by moral and religious training. The final goal was to rehabilitate the offender to society. This new goal of moral responsibility, to correct the prisoner's path, meant that the prison system began to both care for the prisoner and punish him in order to reform and otherwise reach this goal.

The obligations to give good medical care and at the same time punish the criminal often come into conflict. The nurse, the physician's assistant, the physician, and even the prison guard will get a message from Curtis Prout and Robert M. Ross's book *Care and Punishment*. It really explains how things are and how they got that way.

Dr. Prout has worked in the Massachusetts penal system. He has extensively toured prisons and attended the annual conferences of the National Commission on Correctional Health Care. For over 10 years, he has examined and written extensively concerning the major issues in prison health care. Prison medicine is much different from all other branches of medicine, and this book explains the reasons. The book may be disturbing for those who are not intimately acquainted with the prison system, but for those who work in a prison, the book will be invaluable.

Shortly before the publication of this book, I was asked to become a medical director of a county jail built for 202 inmates but housing up to 363. The experiences and observations that I had are strongly parallel to those of Dr. Prout. The ambiguities of care and punishment, the hostilities of those I sought to care for, the predominance of security over the medical work, and the harshness of the environment quickly began to drain the milk of human kindness from me.

The book is highly recommended to those interested in correctional institutions and, particularly, for any of those involved in administration of medical care in the jails.

***The Academic's Handbook*, by A. Leigh Deneef, Craufurd D. Goodwin, Ellen Stern McCrate, editors. Durham: Duke University Press, 1988. \$20.00 cloth; \$9.95 paper.**

Reviewed by Mitchell S. Anscher, M.D., Duke University Medical Center, Durham 27710.

This book was compiled in order to fill a gap which the editors perceived to exist in the education of future academicians, namely, that the budding academic is never taught "the lore of the tribe." Originally presented as a colloquium series for graduate students at Duke, the book represents the culmination of discussions between professors and students concerning the essentials of academic life.

The book is divided into six sections. Each section opens with a brief summary of the issues discussed in the section, followed by two to five chapters written by senior professors, administrators, or funding specialists.

The first section, entitled "The Academy and the Academic," offers thoughts on what it means to be an academic. The authors contend that an academic career is not a retreat from society into the ivory tower, but rather, through research and teaching, the new professor must be a force for positive social change. In addition, practical advice is offered on how to handle problems peculiar to women and minorities in academia. Also addressed are the similarities among and differences between the types of institutions of higher education.

Section two deals with getting and keeping an academic job. Helpful hints are offered on issues such as how to find out about available positions, when to begin looking for a job, how to prepare a curriculum vitae, and what to expect at the interview. The past, present, and future of the tenure system is

From the Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

discussed, as are the barriers one must overcome to become tenured. The financial aspects of an academic career are discussed, although the financial issues peculiar to physician faculty at medical schools are not covered.

Section three addresses teaching and advising. Academic physicians will find the chapter on teaching through discussion particularly helpful, since so much of the formal teaching in medicine occurs in small group settings. Also covered are how to teach large lecture courses, which contains tips physicians may find useful in preparing review courses for colleagues. A thorough review of the advising process is offered, including what information one must know to be an effective advisor. Touchy issues, such as what to do about cheating, are covered here as well.

Section four deals with funding academic research. Suggestions on how to find and approach the agencies most likely to fund one's grant proposal are offered, the differences between (and among) federal and private agencies are discussed, and the basics of writing a grant proposal are reviewed.

Section five covers the area of publishing one's research. Included in this section are scholarly ethics (such as not submitting the same paper to two different journals), as well as tips on preparing a manuscript, writing an appropriate cover letter, responding to reviewers' comments and finding a publisher (if one is writing a book). The chapter entitled "Publishing in Science" will be particularly useful to physicians.

The last section covers the structure of academic administrations, the processes and problems involved in university governance, and the role of some of the administrators and faculty in the governing process. The special role of the department within the university is covered extensively.

In summary, this book is a compendium of essays on practical, philosophical and ethical issues which seeks to assist the young academic in making a smooth transition from student to professor. It is well-organized and well-written. This book is a must-read for anyone considering or about to embark upon a career in academic medicine. □

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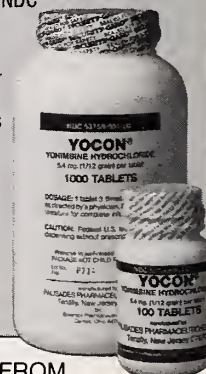
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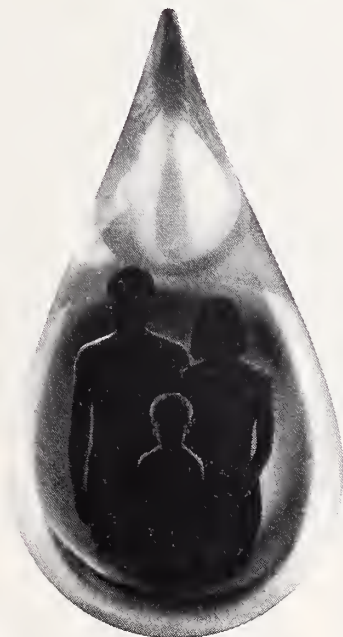


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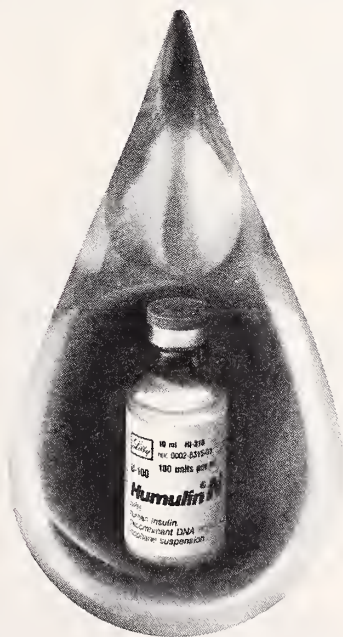
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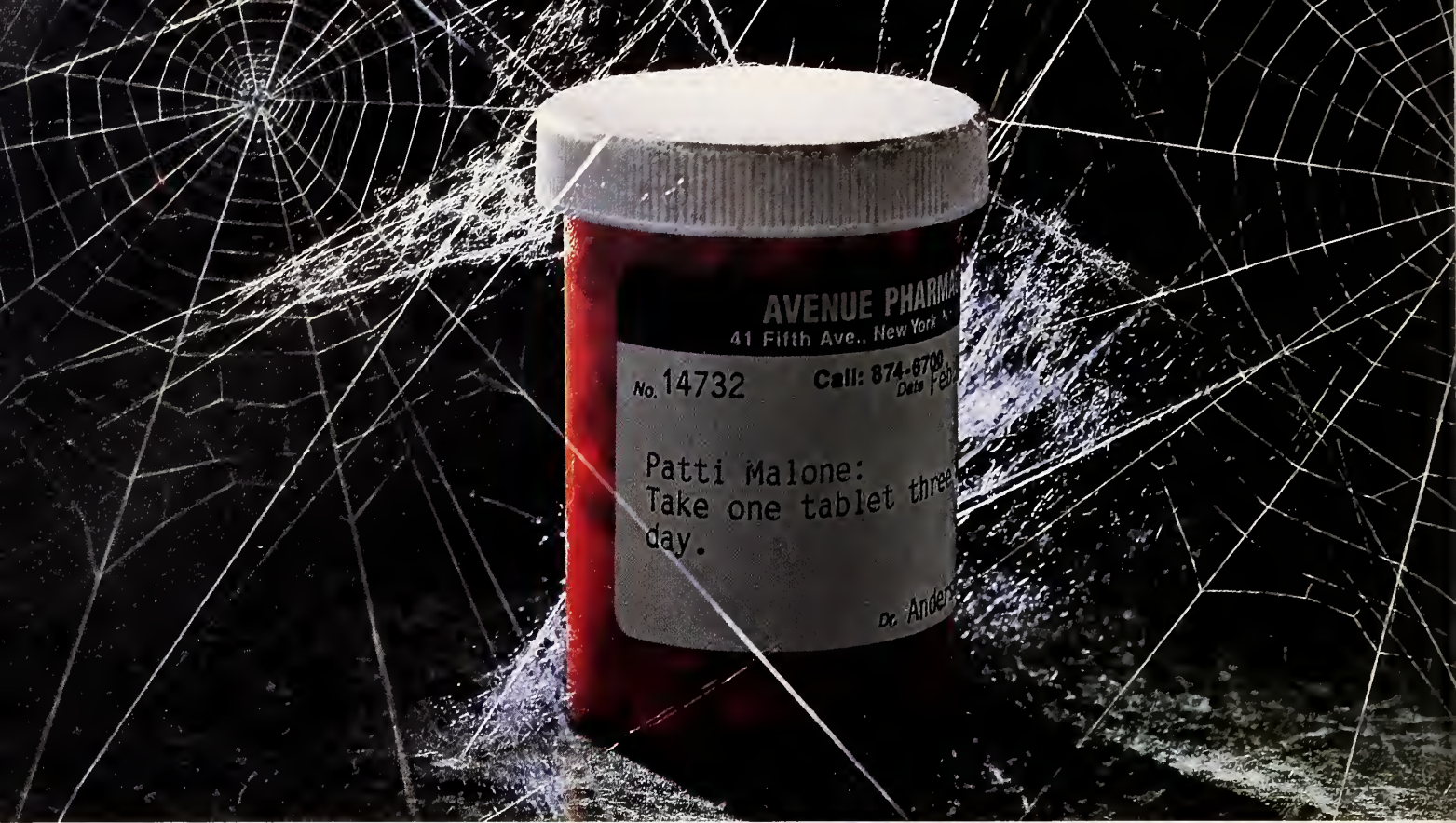


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Reference: 1. Sackett DL, Snow JC. The magnitude of compliance and noncompliance, in Haynes RB, Taylor DW, Sackett DL (eds): *Compliance in Health Care*. Baltimore, Johns Hopkins University Press, 1979, p 14.

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North Carolina Medical Journal For Patients

VOLUME 50 / NUMBER 11 / NOVEMBER 1989

It May Be the Slow Lane ... But You Can Still Get There from Here

Rosemary K. Collett

A year ago I hovered in limbo as my heart malfunctioned while I was on the operating table ... but thanks to the skill of my surgeon and a top-notch operating room team, I was brought back from the edge of beyond.

I don't know why I was sent back. Perhaps I have a job to finish. Perhaps, because of my lifelong inclination to champion the underdog, I have been selected to speak up for the handicapped ... for I have now joined their ranks. Whatever the reason, I have been given a second chance.



Rosemary K. Collett. Mrs. Collett is a naturalist, writer, photographer, and lecturer from Waynesville, North Carolina.

When I entered the hospital last year, I expected to be home in four days. It was, instead, almost a month before I returned, and when I did, I was not the same Rosemary who had left.

More important than the transient heart problems, I suffered a stroke during surgery and when I again became aware of the world beyond the Intensive Care Unit (ICU), I could no longer talk or use my right side. I had become one of 85,000 Americans who become aphasic stroke victims each year. (And, of a million head trauma casualties annually, 20% also suffer some form of aphasia.)

With the left and dominant side of my brain involved, the right side of my body had been affected, and along with aphasia, I had emotional and behavioral problems.*

Living with Aphasia

My surgeon agrees that from the beginning, my main concern was the speech impairment. I seemed far less worried about the inability to walk or to use my right arm and hand. Words ... speech ... being a writer and lecturer, these were all-important to me. The loss of speech was, to me, as the loss of a child to a parent.

I, who had used the power of speech so well—whose presentations often had the drama and intensity of a novel—

*This patient had a profound hypotension during surgery for focal highgrade stenosis of the left internal carotid artery and sustained ischemic injury to the motor strip of the left hemisphere.

whose sense of timing had been compared to that of the late great Jack Benny—was at first confused, then frustrated, then angry—and, finally, filled with hopelessness.

Aphasia: the definition, according to a non-medical dictionary, is “loss of power to use or understand speech.” To further explain, aphasia can include the total or partial loss of any or all of the following: the ability to speak; the ability to read and write; the understanding of words, spoken or written; the comprehension and use of gestures; the ability to calculate.

There are varying degrees of aphasia. Some aphasics speak, slowly, haltingly, but with others, the words may come out as gibberish. They can be totally meaningless to the listener, while the speaker may be unaware of this, and becomes frustrated because no one responds to his or her request or comment.

My therapy began the day I left the ICU, and I dutifully exercised leg and arm as instructed. But it was the speech therapist that I awaited most eagerly each day.

We started with identification of simple objects: bed, nurse, dinner, water. The therapist often used flash cards. In the beginning, recognition came more readily than the ability to vocalize. Later came some semblance of sentence structure. I slowly progressed from: “Water” to “Water, please” and, much later, to “I want some water, please.”

The aphasic tires easily and becomes distracted readily, and I was no exception. Consequently, therapy sessions were short. The inability to communicate my wants, needs and thoughts was most frustrating.

Ten days after I had originally entered the hospital, I was accepted at Thoms Rehabilitation Hospital in Asheville, North Carolina. This was the day life truly began again for me. Soon I was able to walk. Then I could move my right arm. But speech came slowly—too slowly for me. Patience had never been my long suit, and it had not improved following the stroke.

In the middle of a sentence, a trap door slams shut, and the words stop.

Reading and writing were extremely difficult at first. words jumbled together on a page. It was hard to separate them, much less give them meaning. I was transported back in time to another room, another teacher: “A—B—C,” “See Dick run.” When it came to writing, matters were complicated since I had lost the use of my right hand. As a former right-hander, I found writing with the left very awkward, and without a functional right hand I couldn’t stabilize my paper. It tended to slip and slide all over the desktop. It was slow going, mentally and physically.

Some aphasics recover completely, but some of us never quite make a full recovery. For me, life is now like an early morning San Francisco fog—that does not clear by noon. Nothing is sharp and crisp—there is a vagueness and fuzziness to life. The whole world seems a little out of focus—not because of problems with vision. My eyes have been tested and are fine. It’s the mind that has the problem!

Time has little meaning or dimension, and short-term memory has deteriorated. I can’t remember if I called a friend yesterday or three weeks ago, and I’m not sure if I ate breakfast this morning. Talking on the telephone can be very difficult and I rarely do these days.

My mind tends to wander, sometimes at the most inopportune moment. In the middle of a sentence, a trap door slams shut, and the words stop. The mist may clear in seconds, or a minute, or never. Often I am not able to continue the conversation, all memory of it having been erased. I realize that I speak more slowly now, stumbling and faltering, often while trying desperately to marshal my thoughts. When I am not allowed to finish a sentence or thought or an explanation, I sometimes think I should give up trying. I feel it might be much easier, both linguistically and emotionally, to remain silent.

Paying bills and balancing the checkbook had always been my province and had been accomplished in a couple of hours. When I first resumed this chore following the stroke, it took me a full week and I was filled with frustration as my mind struggled to remember arithmetic and the proper sequence of steps required to accomplish the task. Nowadays I’m down to one eight-hour day. Letter writing, which used to be a delight, is now almost a thing of the past—not just because of the loss of use of my right hand—but because it is so difficult to put words and thoughts in a logical progression—never mind the spelling!

Where I once was quick with thought and word, I feel that now I am distressingly slow with both. My husband and daughter had to learn not to supply me with words or to finish sentences for me, for I must grasp the words and concepts myself if I am ever to move out of the slow lane. It is the s.l.o.w.n.e.s.s.s of everything I do these days that gives me the most frustration. With the help of excellent psychological advisors and top-notch occupational therapists, I have pretty much learned to live with the limitations of having but one functional hand. It’s the slow mind that drives me wild!

The aphasic’s progress will differ with each individual. It can depend on age and personality, severity and location of damaged brain cells and other factors. Since I had been relatively young and in pretty good shape, and had always been a fighter, I was determined not to give up. I also had a very supportive family and great therapists who refused to give me time to even think of quitting. Beating aphasia takes a lot of hard work!

Both stroke and head trauma victims may be plagued by emotional and behavioral problems beyond their control, and matters are complicated when this is combined with the inability to express oneself verbally. It is truly embarrassing to be

seized by a fit of hysterical laughter in the midst of a church service—or to begin crying in the center aisle of the grocery store for no apparent reason. We seem to go to extremes with every emotion: irritation, anger, love, fear.

Even after a year, I continue to experience these uncontrollable outbursts occasionally. And the key word here is uncontrollable. I lost my best friend through such an explosion. She apparently has no understanding of the aphasic mind and its often inherent emotional quirks. Because I now have very little in the way of a visible handicap, I think she tended to feel I am whole in mind again, as well. Would that I were!

Some of the aphasic's emotional outbursts can be occasioned by our physical handicaps. I embarrassed my husband in the grocery store one day. I couldn't control my frustration and anger when I was unable to hang on to my purse, shopping list, pencil, and refund coupons, and the list fell to the floor. Actually, even a two-handed person might have had a problem in that situation, but emotion took control, and muttering a "Damnation!" I kicked the offending pad across the store and stomped out. Occasionally I don't remember an incident or my response to it. Sometimes I do remember it, and when the anger and frustration of the moment subsides, I feel rather sheepish.

I find that I am more likely to have these outbursts when I feel pushed or pressured. The frustration of not being able to express myself well can frequently cause uncontrollable anger. If too many ideas, concepts or projects are being shoved at me at one time, I simply can't handle it. The reaction is automatic: cry, scream, rant and rave, or withdraw. Of these, withdrawal is probably the most destructive to one's self. Crying and screaming are over and done with fairly quickly. Feelings may be hurt briefly, but those who care about you can accept them for what they are—emotions unleashed without rhyme, reason or rancor.

Withdrawal has been far more serious for me to handle. One incident is etched indelibly in my mind. It occurred four days after I came home from the Rehabilitation Hospital. There, my days had been completely structured. Every moment was filled with therapy sessions and activity. Then I was discharged and waited to be notified of my schedule as an out-patient. Each day at home I began to find more and more things that I could not do—or that seemed impossible to do—with only one functional hand. The crowning touch came on the fourth evening when I was trying to fix a salad for supper. Just *try* to tear lettuce, slice a tomato neatly, and cut ever-so-thin radish slices with only one hand! Emotions, always so near the surface, erupted. Throwing the salad ingredients all over the kitchen floor, I ran in tears to my bedroom and slammed the door. I stayed there for 19 hours. My mind ran the gamut from: I wish I *had* died on the operating table ... to I'll *never* be able to do *anything* ... to I just *can't* cook anymore—or clean house—or do the laundry—or ... In other words, I was deep in a morass of self-pity. It's hard to climb out of a morass! My husband's words fell on deaf ears. It was my daughter who helped me ascend again to a more stable plateau. To this day, I can't tell you just what she said, but I finally reacted and rejoined the world.

The second incident occurred when surgery was required on my one-and-only functional hand nine months after the stroke. By this time I had gained some gross movement of the right hand, and practiced with it daily so I could somehow survive while the left was immobilized. The 7 a.m. surgery went fine in the out-patient clinic of the hospital. I was able to leave within a couple of hours. Stopping on the way home for breakfast, I had little trouble using a fork with my right hand. I felt I had the world by the tail and could conquer anything! Twelve hours and four pain killer capsules later, I couldn't even hold a spoon to eat a dish of ice cream. My fingers would no longer respond to the previous commands, and all my agonizingly hard-won gains were down the tubes. I was totally helpless. Again I retreated to the bedroom. Again I felt the same self-pitying emotions. This time it lasted longer, and that morass seemed even deeper than before. Frustration turned to anger—anger to rage—rage to despair. I lay abed for more than two days. Finally there came a faint awareness that this anger and despair might be due to more than just an uncontrollable emotional binge. Realizing that the real culprit might be the medication I had been taking, and that these physical and emotional problems might be temporary in nature, I took heart and clung to the hope that all this, too, will pass. With the cessation of the drug, my emotions began to return to some semblance of normalcy. It is interesting to note, however, that it took my right hand two months to regain the abilities it had before that second surgery. My physician later agreed that the medication had likely been the cause of both the physical and emotional distress.

*I still have a mind, slow
though it is, and I can use it
to communicate ...*

I look upon this past year as a second chance at life and as a learning experience. I have been lucky in many ways. My legs now carry me 'most anywhere I care to go. I've found that a one-handed person can still accomplish a great deal. Long-term memory is no problem, and my short-term memory is beginning to improve. I still have a mind, slow though it is, and I can use it to communicate with speech and the written word once again.

It's true that emotion lies ever near the surface, but that's not necessarily bad. Sad movies make me cry more easily these days, and I seem to feel the pain when the sparrow falls, and to participate in the grief of others when a loved one is lost. It may be that very emotionalism that makes me care more about many things today.

I still go to Thoms Rehabilitation Hospital for therapy, though I think they'll be cutting me loose one of these days. The rehab team has done about all they can and the rest is up to me. I often talk to other stroke patients, and try to encourage them. In many ways I'm a success story. I've come a long way. One of my most gratifying experiences came when a stroke patient with problems similar to my own told my occupational therapist that she now had a goal. When asked what it was, she replied, "To do as much as Rosemary can!"

If my accomplishments can occasionally serve as a goal for others, it may be one of the reasons I was returned that day, not so very long ago.

"I can only imagine what it must be like for you—but I can't know until you tell me," said Nancy Banks, rehabilitation center aide.

You who read these lines can never know how the minutes ran into hours, hours into days, and days into weeks as I struggled to find just the right word or phrase to convey the appropriate meaning of each thought or fact or emotion while writing this article. Though it has been a struggle, it will have been worth the effort if you can come closer to understanding an aphasic's problems and can, in the future, deal with us with more compassion.

I shall continue to share with others the feelings and problems of one who is encumbered with an aphasic mind, as well as of those of us who are physically handicapped, in the hopes that those more fortunate than we can come to understand us better, and to be more tolerant of our condition.

Epilogue

A year has passed since the words above were written. It has been a year of change, of challenge—and of accomplishments.

That early morning fog is more like an elusive mountain mist these days. Between the mists, upon the peaks, there are moments of clarity and brilliance. I endeavor to make the most of them when they appear!

Throughout my life, I have been blessed with a sense of humor—and it has stood me in good stead since my stroke. After the critical first three weeks, when humor wavered, I again began to laugh—not only with others, but at myself, as well. Retaining the ability to laugh is crucial to recovery.

Suffering with aphasia as I do, being able to write again and to have my work accepted for publication was my main goal ... and in that, I have succeeded. I have sold four articles in the past year. A couple of editors do not know of my stroke, so I know that the material I submitted was accepted on merit alone. Those editors don't know how long it took me to put words and paragraphs together, and it doesn't matter. It's the finished product that counts. With my computer and good word processing program, writing is so much easier than it used to be on a typewriter. I can now add a sentence or paragraph, or delete one, with relative ease. I have several other articles out, too, and a list of ideas that should keep me busy for three or four years!

Another concern had been my ability to continue my work in photography. With the help of motor drives on my cameras, a unique tripod that drops its legs with the touch of a lever, a ball head with trigger handle that allows positioning the camera at any angle with but a touch of the left hand, handy strobe holders built by my husband for ground-level wildflower photography, and some plain old ingenuity, I am back in the field again.

Not only am I back in the field, but I'm back in the darkroom, too. It takes longer to set up my equipment with only one functional hand, but I've got the time. And, using Cibachrome processing as I do, I have no problem producing award-winning photos—which I did this year.

Though reading and writing are still slow, my long-term memory and my remembrance of cooking techniques is fine. I entered and was selected as one of five finalists in a recipe contest sponsored by the North Carolina Turkey Federation, and competed in a cook-off in Raeford, NC in September 1988. The cook-off was the start of a four-day Turkey Festival. We finalists had to cook our turkey dishes outdoors, under a tent, in front of hundreds of people. I never dropped or burned a thing, and didn't get rattled as I had anticipated I might, when surrounded by so many people. I even had fun doing it.

I've continued, too, with my hydroponic vegetable garden, though I've cut back a little, only growing vegetables of which we are especially fond, that are hard to find at the store, or that tend to be more expensive. I entered my veggies at the county fair and won ribbons with all of them!

Driving is part of my life again, too. Being re-examined by the Highway Patrol, re-licensed, and deemed fit to drive certainly gives one a feeling of independence. I drive to my garden club meetings and to visit friends, and I even took a stint over 50 miles on the interstate on our way back from the turkey cook-off.

Last year I was appointed publicity chairman of our craft organization. It's up to me to get out notices of our monthly meetings and to write press releases about our craft fairs, etc. Again, the computer is handy!

Having gained almost 40 pounds since the stroke, I began walking a mile and a half a day and started eating more sensibly. I've lost 26 pounds in the last seven months, and am aiming at another nine.

Since I had been a lecturer for many years, I wondered if I'd be able to continue. This year I have put together a brand new slide program, developed a story line for it, and have presented it in public. The main difference now is that I must prepare more thoroughly. Whereas I used to speak extemporaneously, and was known for my quick ad libs, I find that I am more comfortable now if I have notes to guide me. Planning ahead, I can put thoughts in proper sequence, and am less likely to leave out something important.

In my extensive educational work with children, I'm having no problems. The younger ones don't seem to notice anything odd—about the way I speak or the lack of use of my right hand. (I use it for gesturing, and I don't think the kids catch on to the fact that I never actually hold anything with it.)

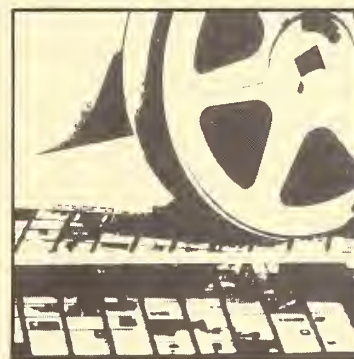
My greatest test was recently passed with flying colors. Before the stroke, I taught an annual winter quarter course on Wildlife Rehabilitation at Haywood Community College. My students were wildlife and forestry majors. I have just finished teaching my course for the first time since the stroke. There were good days—and bad. Some days the thoughts and words fell in line like well-trained soldiers—and some days they got ambushed. Occasionally the thoughts seemed hit by mortar fire, scattering in all directions. With well-prepared notes at hand, I was generally able to get back on track quickly. Some days the mental fog seemed like an ominous cloud of mustard gas. It took every bit of concentration to continue. Once in a while the words refused to emerge properly. It was as though I had my tongue tangled around my eyeteeth and couldn't see what I was saying. However, the three months passed quickly and my students must have understood me, because most got As and Bs in this non-textbook lecture course.

Yes ... this has, indeed, been a year of change ... a year of discovery.

I have discovered, within myself, wells of strength and endurance I didn't know I possessed. And I have discovered there is no shame in asking for help on occasion by admitting there are *some* things you just can't handle by yourself. I have discovered that though I am slower in thought, word and deed, I tend to be more precise and more careful, in every respect.

I have discovered that life is *truly* worth living—to the fullest ... and I have learned to stop and smell the flowers now and then. □

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"Medicare Catastrophic Coverage Act": Application in Long-Term Care Facilities

Denise Altman Brewer

On January 1, 1989, a sigh of relief was expected to be heard from the nation's elderly population. That was the day the first provision of the Medicare Catastrophic Coverage Act took effect.

Although this Act accomplishes much on the hospital front, the implications for long-term care may be misleading. I have seen the confusion of doctors, patients, and family members trying to understand what Medicare will and will not cover in a long-term care facility. This article is intended to inform both doctors and patients of the basic coverage issues.

Prior to the Catastrophic Coverage Act, Medicare Part A covered up to 100 days in a skilled nursing facility for each "spell of illness." This is the part of the story most people know. The problem has been in the "rest of the story."

The definition of skilled nursing varies from Medicare to Medicaid to the physician suggesting placement. A doctor may recommend a patient for skilled nursing, fully convinced that he requires 24 hours of nursing care daily. This same patient, when screened by Medicare, may be denied coverage due to his not meeting the requirements for skilled nursing. Is the doctor wrong? No. Medicare's definition of skilled nursing is much more stringent than any other agency's.

According to Medicare, "a skilled service is one which must be furnished by or under the supervision of trained medical or paramedical personnel to assure the safety of the patient and achieve the medically desired result. A service is not skilled merely because it is performed by a trained medical or paramedical person. A service which can be safely and adequately self-administered or performed by the average, non-medical person, without the direct supervision of trained medical or paramedical personnel, is a nonskilled service without regard to who actually provides the service."

In one facility, of 90 skilled nursing beds, 30 beds were certified for Medicare. During the first half of 1988, on the average, three of those 30 patients were covered for some time period by the Medicare program. The other 27 paid privately or were covered by Medicaid. Many of those covered by Medicare were covered only for a short period of time.

This definition of skilled care has been subject to various interpretations over the past several years. At one point, the rehabilitative potential of the patient was of primary concern. For instance, a patient who had previously lived at home and had been self-sufficient would qualify after a hip fracture if it were reasonable to assume that physical and/or occupational therapy would restore her to her prior condition. Conversely, a patient with Alzheimer's Disease requiring constant monitoring due to both physical and behavioral problems would not have been covered because the condition was not expected to improve significantly.

Later, the interpretation tightened, requiring severe instability for a patient to receive coverage. For instance, the same person above with the fractured hip would likely have been denied coverage, unless other medical conditions complicated her situation substantially.

Most recently, it has been easier to qualify patients for Medicare coverage, although the percentage of skilled nursing patients covered is still well under 20%. As you can see, the *interpretation* weighs most heavily in the coverage decision—outweighing even the physician's recommendation.

You may ask, "When will I know if Medicare will cover?" When a patient is admitted to a Medicare-certified, skilled nursing bed, the facility is required to inform the patient or responsible party of the coverage determination that same day. The Director of Nursing reviews the history and physical and doctor's orders to make the determination. If there is a question, the facility can call Medicare for an opinion, but the information obtained will be just that, an opinion that will not necessarily be upheld on review. There have been cases in which the facility made a positive determination of coverage with which Medicare disagreed when the initial claim was filed. When this

From the Director, Health Care Services Group, Dellinger & Deese, CPAs, 5800 Executive Center Drive, Suite 101, P.O. Box 25707, Charlotte 28229-5707.

occurs, the patient or responsible party is notified immediately that the stay will be noncovered as of the following day. It is then, in most cases, up to the facility to deal with Medicare concerning payment for the disputed days.

Skilled nursing facilities are monitored closely by Medicare to ensure that good decisions are being made. If too many incorrect determinations are made, the facility can lose some of its Medicare benefits.

If the facility and Medicare agree that a patient does qualify for Medicare Part A coverage, what does that mean? Will he or she be covered for an indefinite period of time? No. The new law states that a recipient is entitled to 150 days of inpatient care in a skilled nursing facility in a calendar year, with the patient paying \$20.50 per day for the first eight days. Yet even that can be misleading.

Skilled nursing facilities are required to monitor the conditions of covered patients and to document those conditions during each eight-hour shift. As soon as the patient's condition improves to the point that he or she would no longer have qualified for Medicare on admission, the facility must give the family notice that coverage will terminate the next day. This does not in any way suggest that the patient is ready to be released. Patients often continue to require care past the point of Medicare coverage. At that point, it is up to the patient and the patient's family to arrange for payment which can exceed \$2,500 per month.

This is the major problem of the Catastrophic Coverage Act. While the number of covered days available has increased to 150, this does not address the 80% of patients whose conditions Medicare will not cover or those who are covered for only a short period of time. Many people may say: those patients should be placed on a lower level of care. There are two problems with that idea. First, many of them do qualify for skilled care under Medicaid's guidelines (and certainly under their physician's). Secondly, there are so few intermediate care beds in North Carolina that there is no place to put them if they were displaced. You see the dilemma.

The new Act has restructured the amount of coinsurance patients must pay, reducing it in most cases, but this will do nothing to help the majority of nursing home patients. Physicians need to be aware of Medicare's limitations so they can help prepare family members for the distressing road ahead. It is difficult for the nursing facility staff to inform a family member that care will cost over \$2,500 per month when the doctor believed that Medicare would cover. Neither the physician nor the nursing home staff wants to deal with the confusion

that results.

It is important that doctors treating elderly and disabled patients stay abreast of the coverage criteria under which Medicare is operating. This will help them to provide their patients and the patients' families with accurate information on the probability of coverage. If a decision on nursing home placement is pending for you or a family member, ask your physician if he or she has up-to-date information on Medicare's recent coverage determinations. If not, you or your physician should contact several certified skilled nursing facilities for the information. While they will not be able to discuss particular cases, the Administrator or Director of Nursing should be able to give you guidance in that area.

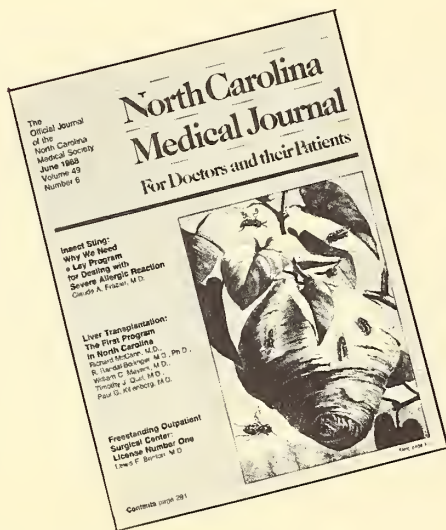
Making a decision on nursing home placement is difficult at best. Minimizing confusion can go a long way toward making the decision bearable. □

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Practical Pointers for the Physician Practicing Primary Care

Abstracted Monthly from the Journals
by Richard T. James, Jr., M.D.

Damp Housing, Mold Growth, and Symptomatic Health State

This must have been a difficult study from which to draw conclusions, considering the multitude of confounding factors. Nevertheless, the authors conclude that persons, especially children, who live in damp, moldy houses are more sickly than those living in dry houses.

1 The object of this prospective study was to assess the relationship between dampness and mold growth and symptoms of ill health.

2 Study:

1. In public housing complexes in Edinburgh, Glasgow, and London, surveys were taken of dampness and mold (both visible and growth on plates) in @ 600 houses. At least one child under age 16 lived in each house surveyed.

2. An entirely separate and independent survey of health conditions was carried out. A detailed questionnaire asking about 16 different symptoms was answered by the adult householder (usually female) about her own and her children's health during the two weeks preceding the survey.

3. Many other possibly confounding factors were included in the survey (smoking, overcrowding, economic conditions, employment, income).

4. Households were classified into three groups:

A. Dry—no dampness or mold.

B. Those with only damp (divided into 0, 1, 2, and 3 degrees of dampness, the method of assessing dampness not described in the article).

C. Those with mold (whether or not dampness was also present).

3 Results:

1. Free of damp and mold—31%

2. Damp—23%

3. Mold (most also damp)—46%

4. Association with symptoms:

A. Adults living in damp, moldy dwellings were likely to report more symptoms overall, including nausea and vomiting, blocked nose, breathlessness, backache, fainting, and bad nerves, than those living in dry homes.

B. Children living in damp, moldy dwellings had a greater prevalence of wheeze, sore throat, runny nose, headaches and fever.

C. All these differences persisted after controlling for possible confounding factors and other causes of bias.

4 Conclusion:

"Damp and mouldy living conditions have an adverse effect on

symptomatic health, particularly among children." Dampness and mold are "...an important public health issue, not solely for its immediate impact but also for the long-term implications." "Poor housing conditions in childhood, for example, are associated with higher rates of admission to hospital and higher morbidity and mortality in adult life."

BRITISH MEDICAL JOURNAL, June 24, 1989, p 1673—original multicenter study reported from Royal Edinburgh Hospital, Edinburgh, Scotland. This is a long paper. The subject was well studied.

New Topical Therapy for Acne Rosacea Offers Conspicuous Improvement, No Systemic Effects

A new topical preparation of *Flagyl* (metronidazole) is reported to improve acne rosacea—"adult acne" (*W.C. Fields disease*).

1 The cause of acne rosacea is not known. It typically affects fair skinned persons in their 30s and 40s who flush or blush easily. Red patches on the forehead, cheeks, nose, and chin typically wax and wane. The problem generally worsens without treatment, with the development of erythema, telangiectasia, edema, papules and pustules, and finally the prominent bright pink proboscis.

2 The disability is cosmetic, causing embarrassment. Socially, it is mistakenly attributed to excessive alcohol consumption. Although alcohol can aggravate acne rosacea, it may be just as severe in an abstainer.

3 Metronidazole has anti-infective and anti-inflammatory properties. It therefore was tried empirically to treat acne rosacea. The mode of action, however, is not understood.

4 Metrogel (metronidazole 0.75% topical gel) 2X daily, has achieved "extremely impressive" results in several small trials. About 2/3 of patients have improvement in appearance within two months. Some have completely cleared in six months. In addition, the associated stinging, burning, itching, and dryness of the affected area improved.

5 Antibiotics, especially tetracycline, have been standard therapy for years. However, this long-term therapy carries risk of adverse effects.

6 No significant adverse effects were reported during any clinical trials. Minor transient redness and watering occurred in the eyes when the gel was applied near them.

7 The initial course of treatment will average four to six weeks at a total cost of @ \$20.

JAMA, April 14, 1989, p. 2014—"Medical News and Perspectives" from the JAMA staff. □

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Spice as a Variety of Death—

Black Pepper Can Be Lethal

Ronald B. Mack, M.D.

In Greek mythology, Hades was the god of the dead, god of the underworld. To get to his domain you were ferried across the river Styx by Charon, the ferryman. Once within the land of Hades the spirits of the dead drank from the river Lethe.¹ This latter word means "forgetfulness," and surely the ultimate forgetfulness comes only with death or during Board exams (from whence we derive the words lethargic and lethal). But death and terminal forgetfulness from black pepper—gimme a break!!

This article could be subtitled Death By Condiment. In the last few years there have been several case reports of death, accidental or purposeful, ascribed to the aspiration of pepper with subsequent asphyxia. Spices have played such an interesting part in the history of the world that it is upsetting to consider that another of Nature's gifts is being used for malignant purposes. In one of the more ancient of history's recorded annals, the Assyrians tell of their gods drinking sesame seed wine before creating the earth.² (Possibly if they had consumed Chianti instead they would have done a better job.)

A spice is a strongly flavored aromatic substance of vegetable origin, obtained from a tropical plant.³ It can be a fruit, flower, seed, root or bark of the plant. Spices are used in worship, in incantations, in magical rites and rituals, as aphrodisiacs, in cosmetics, in embalming, as medicines, as a means (before refrigeration) of enabling people to eat meat without barfing, and currently as articles of death. Empires have risen and fallen because of the spice trade, people have been enslaved to grow them, blood shed, new worlds discovered and fortunes won or lost. Black pepper is considered the master spice. Even today pepper alone accounts for one-fourth of the world's spice trade.

The history of spices extends as far back as the third millennium B.C.³ Some of the earliest written allusions to spices occur in the Old Testament, especially the spices cinnamon and cassia. The Arabians dominated the spice trade throughout the first and second millennia B.C. It was not until the first crusade that the use of spices was resumed in Europe, having been dormant during the Dark Ages. The search for spices to enhance the lucrative spice trade was to cause wars and to cause nations to send their best explorers in search of this commodity. Such names as Prince Henry the Navigator, Marco Polo, Vasco de Gama, Ferdinand Magellan and Christopher Columbus are all associated with the precious aromatics. In 1796 Captain Jonathan Carnes sailed into a Massachusetts harbor with a cargo of pepper worth over \$100,000. This event put the United States into major contention in the world spice market.² We are today the largest consumer of spices.

Death by a seasoning is a rare event, except for hypernatremia induced by excessive ingestion of salt, by accidental or purposeful means. Pepper is the second most popular seasoning in the world but we do not need it to live, as we do sodium chloride.⁴ Probably the first documented case of black pepper aspiration in modern times is from 1964, when L. Adelson reported the first case of homicide in which a mother punished her three-and-a-half year old little girl by pouring pepper into the child's mouth.⁵ The victim's crime was taking a baby bottle away from a younger sibling. In the second report of "pepper aspiration," a 21-month-old little girl accidentally poured pepper into her mouth resulting in severe dyspnea, requiring a tracheostomy and steroids but culminating in survival.⁶ In the second reported case of "pepper homicide,"⁷ reported in 1986, a five-year-old little boy was being punished for lying. His foster mother alleged that she only meant to shake a few grains of pepper on the child's tongue. Alas, instead of a few punishing grains, a large bolus of pepper entered the child's oral cavity rapidly producing dyspnea and then apnea one hour later, even with a tracheostomy.

Common black pepper is the dried, unripe fruit of the woody perennial plant, the *Piper nigrum*. This plant is native to South India and Sri Lanka. The dried, unripe, fruit of this plant

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contains a pungent resin, chavicine with piperine, piperidine and 1% to 2% of volatile oil.^{8,9} Piperine is the primary irritant in this substance; although initially tasteless, it has a burning aftertaste. This chemical has been used as an insecticide because it will kill houseflies better than pyrethrum.⁹ It can also kill people.

The mode of death from pepper is asphyxia caused by mechanical obstruction and mucosal edema.⁶ Sublethal doses can produce profound interruption in the normal function of the tracheobronchial tree. The volatile oil from the *Piper nigrum* contains from 5% to 9% piperine. Volatile oils are extremely irritating to all tissues, particularly mucous membranes. Under the microscope pepper grains are birefringent (refracting twice; splitting a ray of light in two; thank you and sit down, Sir Isaac Newton), irregular, and average 690 μ m in maximum diameter; and they tend to lodge in the upper airways. Obstructive respiratory symptoms occur very quickly indeed.

In 1988 five more cases of fatal pepper aspiration were published, bringing to a total of eight the reported number of children who have died from aspiration of pepper.⁹ Seven of the unfortunates involved homicide; one child allegedly ingested the fatal amount of pepper accidentally. The authors contend that in almost all cases of fatal pepper aspiration in children, child abuse was involved. The victims were usually of preschool age and the pepper was administered as punishment. This information should alert health care professionals who read this article to properly enlist the aid of the Protective Service Department in cases involving significant pepper aspiration in young children.

There is no magic involved in the medical management of a person suffering from black pepper aspiration. If you are asked to see such a patient, treatment could include a tracheostomy with ventilatory assistance and tracheobronchial lavage. At least one author recommends parenteral steroids but there are no good data to support this recommendation.

The agent being discussed (*Piper nigrum*) should not be confused with *red peppers*, which are members of the *Capsicum* species. These "hot numbers," which include cherry peppers, bell peppers, chili peppers and cayenne peppers,¹⁰ will usually not cause death, but the ingestee might wish for death as a relief from the burning. The evil part of the plant as far as medical problems are concerned is a volatile oil found primarily in the skin of the fruit and in the seeds. The toxic principle is called capsaicin. This irritating substance effects, most commonly, two areas in people, the skin and the gastrointestinal tract.

When applied to the skin, erythema and burning, without blisters, is a common result. Chronic exposure to capsaicin may cause vesication and a severe irritant dermatitis. "Hunan Hand" is the name given to the contact irritant dermatitis seen in Chinese people who process chili peppers.¹¹

There are several treatments suggested for people who suffer from superficial burning of the skin caused by capsaicin, including: (1) bathing or immersing the irritated area in vinegar; relief is usually achieved, even if offered 30 minutes or more

after exposure, so says the author of the article;¹¹ (2) initial application of cold water followed by topical vegetable oil, followed by local application of corticosteroids.¹² Getting this plant irritant in your eyes is a most unpleasant experience. In fact, capsaicin is used in antimugger sprays. Involvement of the cornea results in pain, tearing, edema, and photophobia. Exposed eyes should be irrigated with large amounts of room temperature water for at least 15 minutes. Referral for ophthalmologic evaluation might be a wise procedure as well.

It is not surprising to learn that eating such red peppers can cause irritation of the gastrointestinal tract with resulting burning sensation of the lips, tongue and mouth followed by vomiting and diarrhea.¹⁰ Induced emesis is not necessary; the patient will probably provide you with all the spontaneous emesis you need. Activated charcoal can be helpful; cathartics are not. Burning the peppers, accidentally or on purpose, is not such a brilliant idea either, as the capsaicin vapors have the ability to induce significant pulmonary irritation and prolonged cough. If you have a patient who is severely involved—respiratory tract, that is—you may need to administer 100% humidified supplemental oxygen with assisted ventilation.

I am sorry to have to even mention the fact that *Capsicum* plants, and the active principle capsaicin, have also been involved in child abuse. Using "hot peppers" to discipline a child must be considered abusive, as the pain induced can be severe and prolonged, producing remarkable gastrointestinal irritation and anal burning.¹³

It is apparent that cruelty to children will not end soon. Abuse, be it physical, sexual, verbal or chemical, shows the dark side of us all and has been with us since the beginning of civilization. Charles Darwin said: "Our early semi-human progenitors would not have practiced infanticide ... for the instincts of lower animals are never so perverted as to lead them regularly to destroy their own offspring."¹⁴ □

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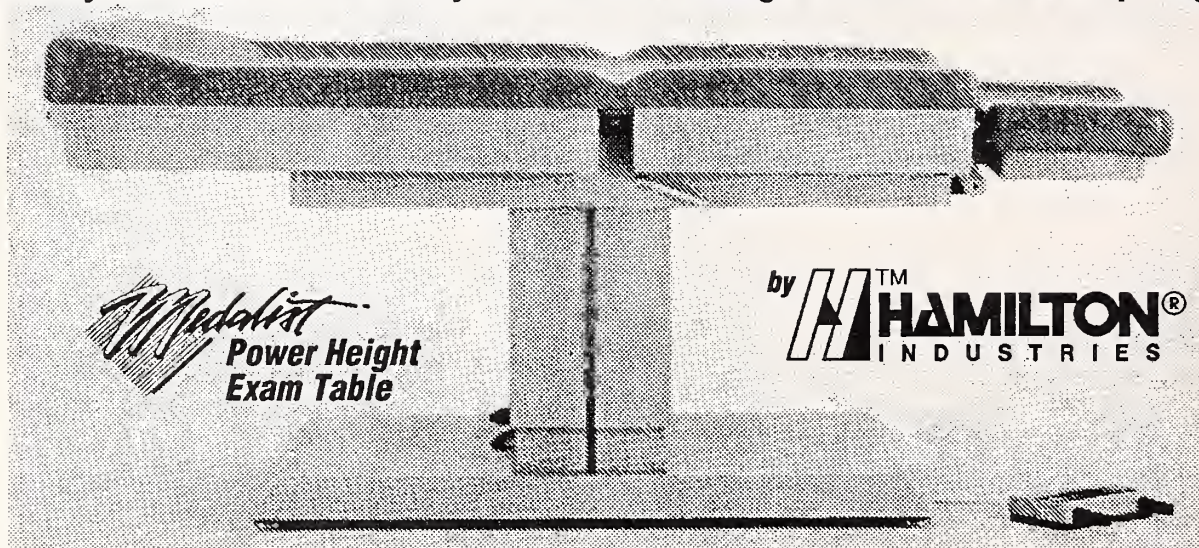
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Physician Employment Contracts and Restrictive Covenants

Keith M. Korenchuk, J.D., M.P.H. and Stephen R. Hunting, J.D.

Medical groups in North Carolina are confronted with increasing stresses as physicians leave groups and establish other relationships in the medical community. This mobility has increased the likelihood that a group will face the prospect of sorting through the issues that arise when a physician leaves a group. The critical document governing any relationship between an individual physician and the medical group is the employment contract, and this document receives intense scrutiny during this emotional time period.

The provision of a physician contract that often receives the most attention in a departure situation is the restrictive covenant clause. Restrictive covenants (or covenants not to compete) usually prohibit the physician from practicing medicine within a certain area (for example, a county in the state) for a period of time. When a physician announces his or her departure, the medical group often asks whether the covenant is enforceable. The departing physician often asks whether he or she can open an office across the street.

While the restrictive covenant issue most often arises with the announcement of a physician departure, it is better addressed in the planning phase of a group's operation. Revising the group's employment contract and reevaluating the restrictive covenant issue in this context will produce dividends for years to come. It allows preventive planning on these issues to be made in a less emotional context. This article will assist the medical group in this planning process.

Medical groups often use restrictive covenants to protect the goodwill and patient loyalty that the group has established in the community. When an established group hires a new physician and brings that physician into the practice, the medical group confers a great benefit on the new physician. The

medical group obviously has an interest in preserving the practice that it has created. A properly drafted restrictive covenant can allow the group to prevent the individual physician from using the group's goodwill to establish his or her own competitive practice.

The use of restrictive covenants raises ethical and legal concerns. Physicians have debated long and hard concerning the appropriateness, from an ethical perspective, of restricting another physician from seeing patients with whom he or she has established a physician/patient relationship. Various professional associations and scholars have debated this issue. Each group, of course, must decide for itself whether it desires to prohibit its members from engaging in a competitive practice upon leaving the group.

Once the group decides to include a restrictive covenant in the employment agreement it must give careful consideration to drafting the covenant to maximize its enforceability. The legal requirements that a restrictive covenant must meet to be enforceable are set forth in the North Carolina General Statutes and in many cases decided by the North Carolina appellate courts over the years. The North Carolina statutes provide that to be enforceable a restrictive covenant must be in writing and signed by the employee. The cases have required that the covenant be reasonable and have attempted to define what is reasonable and what is not.

That process of determining what is enforceable has been impacted by the competing policies surrounding restrictive covenants. On the one hand, the courts must consider the public policy in favor of allowing people to work and contribute their skills and abilities to the community. On the other hand, the courts must consider the general principle of freedom of contract and the public policy in favor of encouraging skilled and established physicians and others to hire and train those new to the profession or the community.

In North Carolina, the leading case in physician restrictive covenants is *Beam v. Rutledge*, 217 N.C. 670 (1940). In that case, Dr. Beam and Dr. Rutledge entered into a partnership for the practice of medicine. The partnership agreement provided

From Law Offices of Parker, Poe, Thompson, Bernstein, Gage & Preston, 2600 Charlotte Plaza, Charlotte 28244.

that either physician could terminate the partnership on 90 days' notice. The partnership agreement also contained the following provision:

In the event of a dissolution of the co-partnership herein created, it is agreed by Dr. H. M. Rutledge, one of the partners, that he will not engage in the practice of the profession of medicine in the town of Lumberton, Robeson County, North Carolina, or within 100 miles of said town of Lumberton, Robeson County, North Carolina, for a period of five years from the date of said dissolution.

In January, 1940, the partnership was dissolved and Dr. Rutledge immediately opened an office for the practice of medicine in Lumberton, limiting his practice to the treatment of diseases of the eyes, ears, nose and throat. Both of the partners had limited their practice to these specialties. Dr. Beam immediately brought suit against Dr. Rutledge, and Dr. Beam obtained a preliminary injunction prohibiting Dr. Rutledge from engaging in the practice of medicine in Lumberton or within 100 miles of that city pending the trial of the case. Dr. Rutledge appealed to the North Carolina Supreme Court.

The Supreme Court upheld the validity of the covenant. The court stated that the test to be applied in determining the reasonableness of a restriction is whether the restraint provides fair protection for the interest of the party who seeks the enforcement, but is not so broad as to interfere with the rights of the public. The nature of this test, the courts observed, is such that reasonableness must be determined on a case-by-case basis.

Since the *Beam* case, the courts in North Carolina have decided a great number of cases and developed a considerable body of case law governing the interpretation and enforcement of restrictive covenants. In determining whether a particular covenant is reasonable and therefore enforceable, the courts have applied the following rules. Physicians who are considering the use of a restrictive covenant clause or who are reviewing their existing contracts should consider the following points:

1 The covenant must be in writing and signed by the employee. Oral restrictive covenants are not enforceable.

2 The covenant must be ancillary to the protection of the legitimate business interests of the medical group. Examples of a legitimate business interest are the patient relationships and name recognition developed through the investment of the group's time, efforts and resources. The covenant must be limited to protecting this interest.

3 The covenant must be supported by valuable consideration. An individual physician cannot merely agree to refrain from practice. This promise will not be enforceable, because it lacks the legal concept known as "consideration," which means "value." In the medical contract context, this legally sufficient consideration generally exists when the physician enters into an employment contract in connection with accepting the offer of

employment and before the physician begins work. Any deviation from that procedure, however, may result in a court finding that the covenant was given without valuable consideration and is, therefore, unenforceable. For instance, courts have invalidated covenants that were entered into after the employment relationship had commenced. While covenants may be enforceable when new "value" (such as a raise in salary) is given after employment commences, this practice is risky. Thus, the only safe way of meeting the consideration requirement for physicians is to have the employment contract with the restrictive covenant executed in advance of the commencement of work by the physician and at the time the employment agreement is created.

4 The covenant must be reasonable with regard to the scope of activity prohibited. In order to be reasonable and therefore enforceable, a covenant must be drafted so that it only restricts the physician from a reasonable scope of activity. Cases in North Carolina such as the *Beam* case have upheld restrictions for physicians from practicing "medicine," even though they are specialists. Although there are no decisions in North Carolina which find that a narrower area is required in a particular specialty area, it is possible that as the law develops, in certain circumstances a broad prohibition against the practice of "medicine" would be considered unreasonably broad by a court. Thus, it is prudent for single specialty groups to consider restricting activity only within that specialty.

5 The covenant must be reasonable as to the time of the restriction. As noted above, in *Beam*, the Supreme Court of North Carolina approved a five-year period of restriction as reasonable. Recent cases outside of the medical area have indicated that the court has narrowed the time period which it considers to be a reasonable restriction. Time periods that extend beyond a two- or three-year period following the termination of the agreement may be increasingly suspect as being too long to protect the legitimate interest of the medical group.

6 The covenant must be reasonable as to the territory in which the activity is prohibited. In the *Beam* decision, the Supreme Court of North Carolina found reasonable a territory of 100 miles. Since that time, however, courts have increasingly narrowed the permissible geographic territory to be restricted. The exact extent of the territory to be restricted, however, should be based upon the business activity of the medical group. If the medical group draws patients from a county or series of counties, a restriction based upon those economic realities is likely to be enforceable. On the other hand, if the scope of the covenant extends beyond the drawing area of the medical group, it is likely to be deemed unenforceable. A recent case from the North Carolina Court of Appeals graphically illustrates this concept.

In *Beasley v. Banks*, 90 N.C. App. 458 (1988), the North Carolina Court of Appeals considered a restrictive covenant between an optician and an optometrist. In *Beasley*, the defen-

dant optometrist agreed not to dispense eyeglasses within a 30-mile radius of Havelock, North Carolina. In considering this clause, the Court of Appeals concluded that this area of geographic restriction was too broad. In presenting his case, the plaintiff did not establish that the 30-mile radius included the area in which the plaintiff optician drew his patients. In fact, the plaintiff failed to present any evidence that he had patients dispersed throughout this area. Based upon this evidence, the court concluded that the geographic area was unreasonably broad and, therefore, unenforceable.

7 The covenant must not be against public policy. Thus, the parties will be allowed to make arrangements between themselves except when the public interest in not enforcing the agreement outweighs this freedom to contract.

This public policy concern arises when the enforcement of the restrictive covenant in question may harm the general public. Late in 1988, the North Carolina Court of Appeals considered such an issue in *Iredell Digestive Disease Clinic, P.A. v. Petrozza*, 92 N.C. App. 21 (1988). The clinic in this case was engaged in the practice of gastroenterology and general internal medicine to patients in Iredell County with its principal place of business in Statesville. The defendant, Dr. Petrozza, was a physician who was a gastroenterologist and internist. Dr. Petrozza signed an employment contract when he commenced work with the clinic. The restrictive covenant provided that Dr. Petrozza would not engage in the practice of medicine for a three-year period following the termination of the agreement in an area within a 20-mile radius of Statesville or within a five-mile radius of any other hospital or office served by the medical group.

When Dr. Petrozza left the employment of the clinic in 1987, the clinic filed a complaint seeking an injunction against Dr. Petrozza's practice of medicine in violation of the restrictive covenant. When this preliminary injunction was denied, the plaintiff appealed to the North Carolina Court of Appeals.

In its decision upholding the trial court's refusal to grant an injunction, the Court of Appeals ruled that the covenant was invalid, basing its decision on public policy grounds. The court stated that a covenant not to compete between physicians is not contrary to public policy as long as it is intended to protect a legitimate interest of the medical group and is not so broad as to be oppressive to the physician or the public at large. Dr. Petrozza argued that the covenant was void on public policy grounds because enforcing the covenant would deprive Statesville residents of necessary medical care. The court stated that if ordering the physician to honor the contractual obligation would create a substantial question of potential harm to the public health, then the public interest outweighs the contract interest of the parties and the court will refuse to enforce the covenant. If, on the other hand, ordering the physician to honor the agreement will merely inconvenience the public without causing substantial harm, then the medical group is entitled to have the contract enforced.

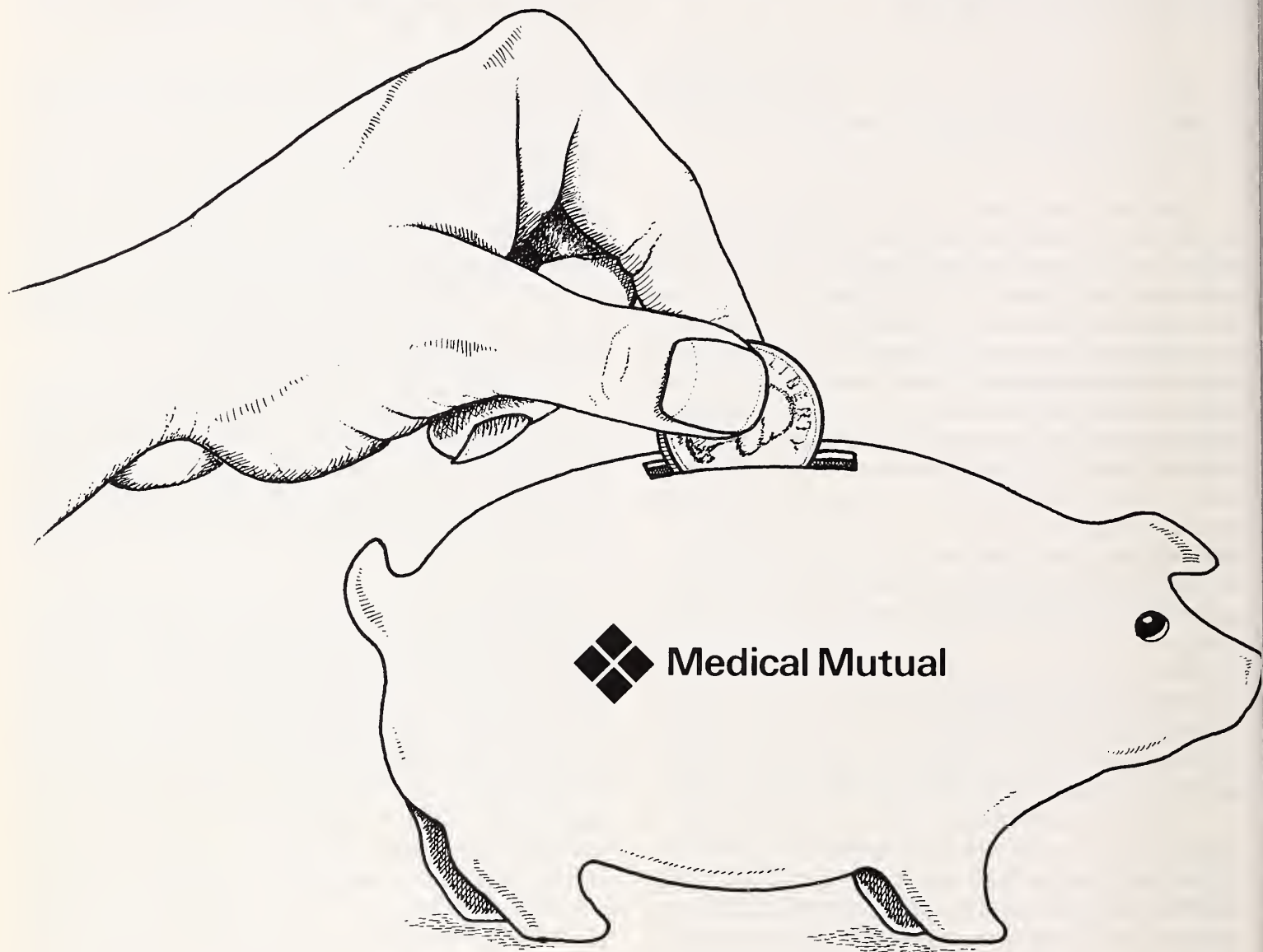
The court reviewed at length the many affidavits presented by both sides that tried to quantify the impact upon their Statesville community of enforcing the covenant. The affidavits were conflicting as to the precise impact of the departure of Dr. Petrozza. In weighing the evidence, however, the court concluded that the public's interest in obtaining adequate health care predominated over the parties' freedom to contract. The critical factor in the decision was that the enforcement of the agreement would create, in the court's view, a monopoly for the clinic. As Dr. Petrozza was only the second gastroenterologist in Statesville, enforcing the agreement would leave only one gastroenterologist practicing in that town. The court also placed great weight on the fact that patients would be required to travel approximately 45 miles for this care if the other Statesville gastroenterologist were unavailable and that on occasion such a distance could in fact be life threatening. Based on these considerations, the Court of Appeals concluded that the contract was void because it was against public policy. While this decision recognized the validity of restrictive covenants in general, it does possibly complicate the analysis of physician contracts in a number of rural areas where the availability of specialized medical care may not be great.

The enforceability of restrictive covenants in North Carolina is a complicated subject. Restrictive covenants for physicians are in fact enforceable, but only under specifically defined circumstances. Physicians in medical groups should review closely their covenants with these standards in mind, and those groups that do not have covenants at the present time should review their strategies in determining whether such covenants are necessary.

Clearly physicians who are in practice in North Carolina today will no longer in many instances remain where they originally began their practice. Both medical groups and individual physicians must decide whether the practice being entered into is worthy of protection or whether the junior physician should have free mobility. In any event, the decisions made should be made in advance. Decisions made in the planning context when no specific dispute is at hand will help address these issues in a comprehensive manner. To ignore the issue, however, is not a good solution. Ignoring the restrictive covenant issue or failing to review periodically the restrictive covenants that are in place invites the decision to be made after a physician departure has been announced. In that context, all that can be done is to evaluate the existing covenant in light of the rapidly developing law. Certainly the chances for enforceability of a covenant are improved if it is prepared with care in light of current law. □

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"60 Minutes" in Perspective—

The Role of Colored Glasses in Dyslexia

Banks Anderson, M.D.

The Editor saw a CBS "60 Minutes" television program on dyslexia, and asked Dr. Banks Anderson to write this article.

Often when a child's reading performance is below what parents expect for their child, the child is labeled "dyslexic" or "learning impaired." Of course hundreds of thousands of our children graduate or drop from high school each year unable to read at a basic level. Some functional illiterates are even accepted into universities to play basketball or football. No one calls these students dyslexic or learning impaired. Instead the tragic public attitude is: "What do you expect?"

But the concerned and embarrassed parents of children who are not reading as expected are very vulnerable to virtually any quack who promises improvement. Since almost any form of special attention, quackery or not, along with normal maturation will result in improvement, testimonials for this and that regimen abound. (Extirpating half of a child's brain to prevent "mixed dominance conflicts" is an exception to the "any special attention produces improvement" rule.) What are the facts then?

First, it is possible to read difficult and polysyllabic material with no eyes at all. Reading Braille or Morse code may be slower but the conversion of symbols into words and ideas occurs without any vision. It should be obvious that reading is a function of the brain and not of vision. Second, any ophthalmologist has seen children read well with very poor vision, crossed eyes, and dancing eyes (as for example in albinism).

Some have eventually graduated from schools like Princeton without even playing basketball. Third, the allegedly "scientific" studies advocating one or the other of these visual regimens are flawed by lack of controls and masked observers, or by failure to recognize the great power of the placebo effect. Why then all of this nonsense about "visual training," eye "exercises," tinted glasses, etc., for "dyslexia"? The answer may lie in the hundreds and thousands of dollars paid out for weekly therapy sessions or for appliances.

The above will enrage the quack who profits, the parents who know their child is a genius except for this reading problem, the teachers who slough responsibility for the child's poor reading, and the child who bathes in the glow of special attention. Why then would I want to make statements like those above? I will say it for these quacks, parents, teachers, and children ... I must have an area learning disability, a dysquackaphilia perhaps.

Reading with comprehension is of tremendous importance. The basic pedagogic principles of special attention tailored to needs, repetition, repetition, repetition, encouragement, and reward for achievement are critical and need not involve costly appliances or pseudomedical treatments or jargon.

□

From Department of Ophthalmology, Duke University Medical Center, Durham 27710.

Letters to the Editor

On Dr. Weaver's Resource Based Relative Value Scale editorial

To the Editor:

I was fascinated by the article "The Resource Based Relative Value Scale: A Second Opinion," by Dr. James Weaver (1989;50:381-2). It was extremely well written and the use of interior monologue as a literary technique was very effective. It also indicates that Dr. Weaver has more than a casual knowledge of the writings of James Joyce.

Primary care physicians do not wish the skill and knowledge of thoracic surgeons demeaned. What is suggested is that they accept a little more reward for their services from the very Deities that he invokes so frequently in his article and a little less from third party payors.

Malcolm Fleishman, M.D.
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Fayetteville 28303

Licensure for respiratory care practitioners

To the Editor:

I am writing to the journal because of my position as a physician specializing in pulmonary and critical care medicine and also as a spokesman for the major medical group interested in pulmonary disease in North Carolina, the North Carolina Thoracic Society (I am their immediate past president). The issue I wish to bring up is that of licensure for our respiratory care practitioners in the state of North Carolina. While support was strong in the legislature for this legislation two years ago, the posture of the North Carolina Medical Society over the last several months was instrumental in effectively defeating this bill in 1989. I think this was a mistake for several reasons. These are:

- 1 The practice of respiratory care requires a minimum level of education. Quality assurance of cardiopulmonary diagnostics, aerosol medication delivery, and most importantly maintenance of complex life support systems (mechanical ventilators) demands a level of education beyond that of a high school graduate. Despite this, the North Carolina legislature (with the encouragement of the North Carolina

Medical Society) concluded that respiratory care practitioners are "no different from ordinary labor" (official statement of the North Carolina Assembly's Committee on New Licensure—1989). This, to me, reflects a serious lack of understanding of the nature of respiratory care in 1989 and runs counter to the official stance of national medical societies involved with respiratory disease (e.g.—the American College of Chest Physicians and the Society of Critical Care Medicine). Current statistics in North Carolina would suggest that as many as 25% to 33% of respiratory care practitioners have no formal education and no requirement to obtain one. To me this is an appalling situation given the level of complexity of respiratory care today.

- 2 Mandating minimum standards for respiratory care personnel is cost effective. There has been much concern raised that minimum standards for respiratory care practitioners would result in higher cost because of higher salaries for personnel with higher educational requirements. Although on the surface this seems logical, it must be pointed out that educated respiratory care practitioners can actually make the delivery of respiratory care *more* cost effective. This occurs because a good respiratory care practitioner can serve as a consultant to help select the most cost effective forms of treatment and to help alert the physician to when therapy is being used inappropriately. Tasks such as these can clearly not be done by uneducated personnel. I would point out that a number of studies done at several prestigious medical centers have documented that respiratory care protocols, using well trained respiratory care personnel, and aimed at reducing ineffective techniques have *always* reduced costs.

- 3 Medical direction from licensed physicians remains a cornerstone. Another concern has always been that a licensed respiratory care practitioner will want to strike out "on his own" and deliver respiratory care as he sees fit. This is clearly *not* the case. Specifically, the American Association for Respiratory Care (AARC), the official body of respiratory care practitioners, has adamantly supported the idea of respiratory care *always* being under the direction of qualified medical doctors. I am currently the chairman-elect of the Board of Medical Advisors of the AARC and can personally attest that support for this position within the organization remains very strong. Indeed, I personally could not support a bill that did not mandate adequate medical direction.

I realize that the North Carolina Medical Society has many important issues before it. However, I would like to request it to strongly reconsider its position relative to licensure for respiratory care practitioners. Indeed, I would welcome the North Carolina Medical Society's input into structuring a bill that could truly benefit the people of North Carolina.

Neil R. MacIntyre M.D.
Associate Professor of Medicine
Medical Director of Respiratory Care Services
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Illustrations should be black and white glossy prints or color or black and white slides, with legends typed in double-space on a separate sheet of paper. Since the *Journal* has a limited budget for color, it may be a factor in publishing color illustrations.

Attach to the two copies of the manuscript a cover letter giving the address and telephone number of the person who will correspond about it, and address the completed communication to the Editor, Box 3910, Duke University Medical Center, Durham, NC 27710.

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Authors interested in more effective writing may find *The Elements of Style* by Strunk and White and *How to Write and Publish a Scientific Paper* by Day helpful.

Extracted, with permission, from *Virginia Medical* with thanks.

In Memoriam

Resolution of the Alamance-Caswell Medical Society,
Burlington, North Carolina

George Douglas Gaddy, M.D.

Whereas, George Douglas Gaddy, M.D., was born in Dillon, South Carolina, on February 8, 1925, finished medical school training at the Medical College of Virginia, and residency in Ophthalmology and Otorhinolaryngology at Duke Hospital; and,

Whereas, Dr. Gaddy established his practice in Ophthalmology and Otorhinolaryngology in Burlington, North Carolina in 1953 and served the public with excellent professional care except for a two year hiatus at which time he served his country in the Armed forces; now

Therefore, be it resolved that in the death of Dr. George Douglas Gaddy, our community has lost a dedicated physician who made significant contributions to the growth of modern health care in Alamance county; and,

Be it further resolved that we express our appreciation for his services to the Hospitals and the people of Alamance County; we express our deeply felt sense of personal loss and Christian sympathy to his family.

This the 1st day of July, 1988.

Paul M. Abernethy, M.D.
Past President of

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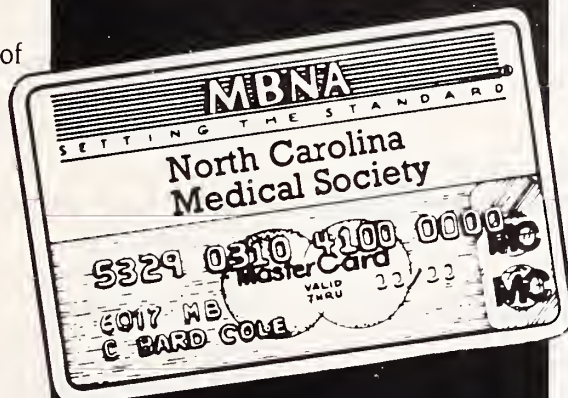
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November 17

Current Concepts of Industrial Medicine - A Rehabilitation Day Workshop

Place: Greenville

Credit: 6 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

December 1-3

Winter Family Physicians Weekend

Place: Raleigh

Credit: 12 hours, AAFP

Fee: \$125

Info: Marietta Ellis, NC Academy of Family Physicians, P.O. Box 18469, Raleigh 27619. 919/847-6467

December 2

UNC Ophthalmology Residents' Day

Place: Chapel Hill

Credit: 6 hours Category I AMA

Info: Ms. Christine C. Cotton, Department of Ophthalmology, CB #7040, 617 Clinical Sciences Building, UNC, Chapel Hill 27599-7040. 919/966-5296

January 3,4

ACLS Retraining Course

Place: Raleigh

Credit: 8 hours AAFP

Fee: \$75

Info: Helen Creech, R.N., Course Coordinator, Rex Hospital, 4420 Lake Boone Trail, Raleigh 27607. 919/783-3161

January 19

Neurology Day - Parkinsons Disease and Other Disorders of Movement and Cognition

Place: Greenville

Credit: 6.5 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

February 1-3

Geriatric Update

Place: Research Triangle Park

Credit: TBA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

Continuing throughout the year

Geriatric Education Modules in geriatric medicine, mental health, health promotion and long-term care

Place: Durham

Fee: \$10

Info: Geriatric Education Center, Box 3003, DUMC, Durham 27710. 919/684-5149

Physician Advisory Board Sought

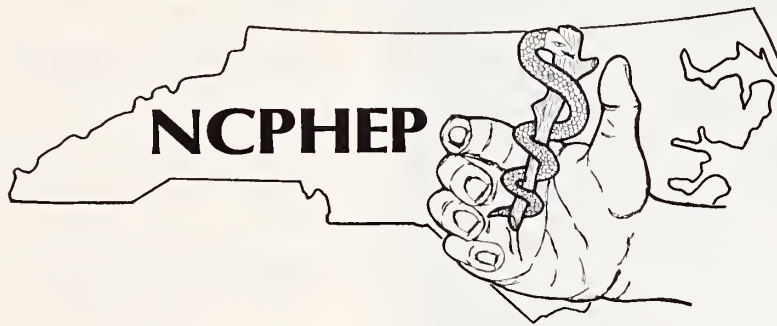
The Center for Health Policy Research and Education (CHPRE) at Duke University needs 15 physicians to serve on a Physician Advisory Board. In February, 1990, CHPRE will submit a major five-year grant proposal to the National Center for Health Services Research (NCHSR). The Duke study will compare the effectiveness of different approaches to the management of stroke patients.

The Physician Advisory Board will be composed of specialists in Internal Medicine, Family Medicine, Surgery and Neurology. This Board is needed to provide expert judgments regarding data elements to be included in a comprehensive model of stroke management. Board members also would assist in identifying and recruiting physicians for three regional focus groups in North Carolina. Board members would be asked to attend half-day meetings at Duke every three months for four years, starting in October, 1990. For each meeting, Board members would receive an honorarium and reimbursement for travel expenses.

CHPRE would like to complete the selection of Board members prior to submission of its grant proposal on February 1, 1990. Anyone interested in serving on this Physician Advisory Board should contact CHPRE's Director, David B. Matchar, M.D., at (919) 684-3023 or David Simel, M.D., (919) 684-5199.

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3. Frequency of Issue Monthly	3A. No. of Issues Published Annually 12	3B. Annual Subscription Price \$12.00
4. Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP+4 Code) (Not printers) 222 North Person Street, Raleigh, NC 27611		
5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher (Not printer) 222 North Person Street, Raleigh, NC 27611		
6. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor (This item MUST NOT be blank)		
Publisher (Name and Complete Mailing Address) North Carolina Medical Society, 222 North Person Street, Raleigh, NC 27611		
Editor (Name and Complete Mailing Address) Eugene A. Stead, Jr., M.D., Route 1, Box 194, Bullock, NC 27507		
Managing Editor (Name and Complete Mailing Address) Laurel Ferejohn, P. O. Box 3910, Duke University Medical Center, Durham, NC 27710		
7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)		
Full Name	Complete Mailing Address	
North Carolina Medical Society	222 N. Person Street, Raleigh, NC 27611	
8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities. (If there are none, so state)		
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9. For Completion by Nonprofit Organizations Authorized to Mail at Special Rates (DMM Section 423.12 only) The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one) (1) <input type="checkbox"/> Has Not Changed During Preceding 12 Months (2) <input type="checkbox"/> Has Changed During Preceding 12 Months (If changed, publisher must submit explanation of change with this statement.)		
10. Extent and Nature of Circulation (See instructions on reverse side)	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies (Net Press Run)	8,088	7,921
B. Paid and/or Requested Circulation 1. Sales through dealers and carriers, street vendors and counter sales	---	---
2. Mail Subscription (Paid and/or requested)	7,962	7,780
C. Total Paid and/or Requested Circulation (Sum of B1 and B2)	7,962	7,780
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies	---	---
E. Total Distribution (Sum of C and D)	7,962	7,780
F. Copies Not Distributed 1. Office use, left over, unaccounted, spoiled after printing	126	141
2. Return from News Agents	---	---
G. TOTAL (Sum of E, F1 and 2—should equal net press run shown in A)	8,088	7,921
11. I certify that the statements made by me above are correct and complete	Signature and Title of Editor, Publisher, Business Manager, or Owner Business Manager	

PS Form 3526, Feb. 1989

(See instructions on reverse)

November 1989

bulletin

NORTH CAROLINA MEDICAL SOCIETY

Have you lost your health insurance coverage?

For a number of years, the NCMS endorsed a program of health insurance. It included comprehensive, major medical and hospital indemnity coverage. These policies were sold by Golden-Brabham Insurance Agency in Greensboro and originally underwritten by Kemper.

In 1985, the Society withdrew its endorsement, but many NCMS members continued their coverage. In the meantime, Golden-Brabham continued to market the products to physicians.

On September 18, 1989, Central Life Insurance Company (which had become the carrier in 1988) wrote to holders of major medical policies to inform them that their coverage would be terminated December 1, 1989. While we understand that the Golden-Brabham Agency is attempting to place this coverage, there is no guarantee at this time that they will be able to do that. If you are facing a cancellation of coverage, please note the following article.

A supplement
to the
*North Carolina
Medical Journal.*

Major medical, term life endorsements

In the August *Bulletin*, we surveyed NCMS members about their interest in Society-sponsored life and health insurance programs. We received approximately 70 responses. That level of interest does not warrant the establishment of a self-insured program but individual responses communicated some concern that affordable coverage — particularly major medical coverage — is hard to find.

On October 8, the Executive Council, acting on a recommendation of the Membership Services and Benefits Committee, endorsed a major medical program underwritten by TIME Insurance Company and offered through MMIC Insurance Services, Inc. The TIME premiums are competitive, and the policies are guaranteed renewable. TIME also offers several levels of deductibles. The policies are individually underwritten, and physicians or staff with pre-existing conditions may not be able to purchase coverage with TIME. MMIC Insurance Services can recommend other coverage in such cases. For more information, contact Melissa Mills or Bergetta Boney at MMIC Insurance Services, Inc. at (800) 822-6561.

A term life program, LifeGard, which is underwritten by Western Life Insurance Company, has had the NCMS endorsement for several years. The Membership Services and Benefits Committee recently reaffirmed NCMS approval of the program. You can find out about LifeGard by contacting Insurance Services at the number listed above.

More about Equicor

How to build a clean claim

You know by now that clean claims are the quickest way for you to be reimbursed by Equicor for the services you provide to your Medicare patients. A clean claim mandates payment in 14 days for participating physicians; non-participating physicians have to wait a little longer. A less-than-clean claim puts your payment on hold until Equicor gets the needed information from you and finishes developing the claim. Thus, it behooves you to respond quickly to any requests for more information.

To build a clean claim, complete the entire form. It's especially important to include the following on the HCFA 1500 form (sample on facing page):

1. the patient's Medicare number in block 6;
2. the name of other insurance coverage in block 9;
3. the name of the referring physician if patient has been referred to you for a consultation in block 19;
4. name and address where services were rendered, if other than your office or patient's home, in block 21;
5. if applicable, indicate if lab work was performed outside your office in block 22;
6. the correct ICD-9 code number to the highest degree in block 23 and block 24D;
7. the date of service in block 24A;
8. the place of service in block 24B (Equicor prefers the alpha listing, i.e., "O" for office, for paper claims. Electronic claims must have numeric codes.);
9. the correct CPT code in block 24C;
10. the correct charge for the service rendered in block 24E;
11. the number of days or units of services rendered in block 24F;
12. the performing physician's Equicor provider number in block 24H;
13. the physician's signature by computer or stamp in block 25;
14. a clear indication of whether or not you accept assignment in block 26;
15. the physician's or clinic's name, address and provider number in block 31.

Medicare as secondary payor

Ask your patients for other insurance information....

Medicare law allows the Medicare program to recover payments that Medicare carriers make and subsequently determine should have been made by another insurer. A new regulation clarifying requirements for providers who receive these erroneous Medicare payments becomes effective on November 13, 1989. The regulation states that if your Medicare patients fail to give you correct information about their primary insurance coverage, **you are not obligated to reimburse Medicare** when they discover another insurer was responsible for payment.

You can avoid having to reimburse Medicare for erroneously paid claims by documenting that you asked your patient about other insurance coverage. Ask annually to keep your file up-to-date.
(Continued on page 11)

Bulletin

is published monthly by the North Carolina Medical Society as a supplement to the *North Carolina Medical Journal*. Reader comments and suggestions are welcome and should be directed to Editor, *Bulletin*, North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611, (800) 722-1350, FAX (919) 833-2023

PLEASE DO NOT
STAPLE IN
THIS AREA



HEALTH INSURANCE CLAIM FORM

(CHECK APPLICABLE PROGRAM BLOCK BELOW)

FORM APPROVED
OMB NO. 0938-0008

<input type="checkbox"/> MEDICARE (MEDICARE NO.)	<input type="checkbox"/> MEDICAID (MEDICAID NO.)	<input type="checkbox"/> CHAMPUS (SPONSOR'S SSN)	<input type="checkbox"/> CHAMPVA (VA FILE NO.)	<input type="checkbox"/> FECA BLACK LUNG (SSN)	<input type="checkbox"/> OTHER (CERTIFICATE SSN)
---	---	---	---	---	---

PATIENT AND INSURED (SUBSCRIBER) INFORMATION

1. PATIENT'S NAME (LAST NAME, FIRST NAME, MIDDLE INITIAL)		2. PATIENT'S DATE OF BIRTH		3. INSURED'S NAME (LAST NAME, FIRST NAME, MIDDLE INITIAL)	
4. PATIENT'S ADDRESS (STREET, CITY, STATE, ZIP CODE)		5. PATIENT'S SEX MALE <input type="checkbox"/> FEMALE <input type="checkbox"/>		6. INSURED'S I.D. NO. (FOR PROGRAM CHECKED ABOVE, INCLUDE ALL LETTERS)	
7. PATIENT'S RELATIONSHIP TO INSURED SELF <input type="checkbox"/> SPOUSE <input type="checkbox"/> CHILD <input type="checkbox"/> OTHER <input type="checkbox"/>		8. INSURED'S GROUP NO. (OR GROUP NAME OR FECA CLAIM NO.)		INSURED IS EMPLOYED AND COVERED BY EMPLOYER HEALTH PLAN <input type="checkbox"/>	
9. OTHER HEALTH INSURANCE COVERAGE (ENTER NAME OF POLICYHOLDER AND PLAN NAME AND ADDRESS AND POLICY OR MEDICAL ASSISTANCE NUMBER)		10. WAS CONDITION RELATED TO: A. PATIENT'S EMPLOYMENT YES <input type="checkbox"/> NO <input type="checkbox"/> B. ACCIDENT AUTO <input type="checkbox"/> OTHER <input type="checkbox"/>		11. INSURED'S ADDRESS (STREET, CITY, STATE, ZIP CODE) TELEPHONE NO.	
12. PATIENT'S OR AUTHORIZED PERSON'S SIGNATURE (READ BACK BEFORE SIGNING) I AUTHORIZE THE RELEASE OF ANY MEDICAL INFORMATION NECESSARY TO PROCESS THIS CLAIM. I ALSO REQUEST PAYMENT OF GOVERNMENT BENEFITS EITHER TO MYSELF OR TO THE PARTY WHO ACCEPTS ASSIGNMENT BELOW.		13. I AUTHORIZE PAYMENT OF MEDICAL BENEFITS TO UNDERSIGNED PHYSICIAN OR SUPPLIER FOR SERVICE DESCRIBED BELOW.		11 a. CHAMPUS SPONSOR'S: STATUS: <input type="checkbox"/> ACTIVE DUTY <input type="checkbox"/> DECEASED <input type="checkbox"/> RETIRED BRANCH OF SERVICE	
SIGNED _____ DATE _____		SIGNED (INSURED OR AUTHORIZED PERSON) _____			

PHYSICIAN OR SUPPLIER INFORMATION

14. DATE OF: <input type="checkbox"/> ILLNESS (FIRST SYMPTOM) OR INJURY (ACCIDENT) OR PREGNANCY (LMP)		15. DATE FIRST CONSULTED YOU FOR THIS CONDITION		16. IF PATIENT HAS HAD SAME OR SIMILAR ILLNESS OR INJURY, GIVE DATES		16 a. IF EMERGENCY CHECK HERE <input type="checkbox"/>	
17. DATE PATIENT ABLE TO RETURN TO WORK		18. DATES OF TOTAL DISABILITY FROM _____ THROUGH _____		DATES OF PARTIAL DISABILITY FROM _____ THROUGH _____			
19. NAME OF REFERRING PHYSICIAN OR OTHER SOURCE (e.g. PUBLIC HEALTH AGENCY)		20. FOR SERVICES RELATED TO HOSPITALIZATION GIVE HOSPITALIZATION DATES ADMITTED _____ DISCHARGED _____		22. WAS LABORATORY WORK PERFORMED OUTSIDE YOUR OFFICE? YES <input type="checkbox"/> NO <input type="checkbox"/>		CHARGES:	
21. NAME AND ADDRESS OF FACILITY WHERE SERVICES RENDERED (IF OTHER THAN HOME OR OFFICE)		23. A. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY. RELATE DIAGNOSIS TO PROCEDURE IN COLUMN D BY REFERENCE NUMBERS 1, 2, 3. 1. _____ 2. _____ 3. _____ 4. _____		B. EPSDT YES <input type="checkbox"/> NO <input type="checkbox"/> FAMILY PLANNING YES <input type="checkbox"/> NO <input type="checkbox"/>		PRIOR AUTHORIZATION NO.	
24. A. DATE OF SERVICE FROM _____ TO _____		B. PLACE OF SERVICE		C. FULLY DESCRIBE PROCEDURES, MEDICAL SERVICES OR SUPPLIES FURNISHED FOR EACH DATE GIVEN PROCEDURE CODE (IDENTIFY) _____ (EXPLAIN UNUSUAL SERVICES OR CIRCUMSTANCES)		D. DIAGNOSIS CODE	
E. CHARGES		F. DAYS OR UNITS		G. T.O.S.		H. LEAVE BLANK	
25. SIGNATURE OF PHYSICIAN OR SUPPLIER (INCLUDING DEGREE(S) OR CREDENTIALS) (I CERTIFY THAT THE STATEMENTS ON THE REVERSE APPLY TO THIS BILL AND ARE MADE A PART THEREOF)		26. ACCEPT ASSIGNMENT (GOVERNMENT CLAIMS ONLY) (SEE BACK) YES <input type="checkbox"/> NO <input type="checkbox"/>		27. TOTAL CHARGE		28. AMOUNT PAID	
32. YOUR PATIENT'S ACCOUNT NO.		30. YOUR SOCIAL SECURITY NO.		31. PHYSICIAN'S, SUPPLIER'S, AND/OR GROUP NAME, ADDRESS, ZIP CODE AND TELEPHONE NO.		29. BALANCE DUE	
DATE _____		33. YOUR EMPLOYER I.D. NO.		I.D. NO.			

* PLACE OF SERVICE AND TYPE OF SERVICE (T.O.S.) CODES ON THE BACK REMARKS:

APPROVED BY AMA COUNCIL
ON MEDICAL SERVICE 6/83

Form HCFA-1500 (1-84)
Form CHAMPUS-501

Form OWCP-1500
Form RRB-1500

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Washington —

Catastrophic yes or no?

By the time you read this, the Catastrophic Program may be history. On October 4, 1989, the House voted to repeal the **entire** program (except the Medicaid component that allows Medicaid to pay for Medicare co-payments and deductibles) and vowed to settle for nothing less than repeal when the House-Senate Conference Committee meets to reconcile their differences. The Senate version eliminates the program's surtax but retains the extended (greater than 60 days) coverage for hospitalization. Most of the drug program and almost all other provisions, including a limit on out-of-pocket costs for physician services, have also been cut from the Senate package.

It is difficult to tell how this less than rewarding experience with legislation addressing the needs of the elderly will affect Congress. There is a great deal of speculation that members will be reluctant to address this important issue again any time soon.

The National Practitioner Data Bank

Congress created the National Practitioner Data Bank in 1986, but a variety of barriers have delayed development and implementation. UNISYS, the company under contract to run the Bank, will collect information on malpractice claims payments; professional review actions by hospitals and other health care entities and medical societies; license revocations

or suspensions as well as censures, reprimands and probation periods. Hospitals will be required to request information from the Data Bank on clinical staff and applicants for staff privileges.

The final regulations, which will specify the data collection procedures and who will have access to the information, are now being reviewed by Health and Human Services Secretary Louis Sullivan. Implementation is not expected before February 1990 and it will likely be much later than that.

Lab regulation

We now expect previously unregulated labs, including physicians' office labs, to be regulated starting July 1, 1991. Proposed rules, which we expect to be released sometime between mid-November and the end of the year, will describe the new requirements. If you have a lab you will probably be affected by these regulations. We will have an opportunity to comment on the rules as soon as they are published and will need your input. Watch for a summary of the proposed regulations and let us know how they will affect you.

Medicare

RBRVS; Stark's anti self-referral bill; Expenditure Targets or Medicare Volume Performance Standards; limits on balance billing; Medical Economic Index update; reduction in "over-priced" procedures; outcomes research....

(Continued on page 5)



Raleigh —

A number of legislative study commissions will soon begin meeting to address medical and legal issues of great interest to physicians. Of major interest will be the Medical Malpractice Claims Arbitration Study Commission which is a special commission established as the result of a bill introduced by Senator Joe Johnson (D-Wake) on behalf of the North Carolina Medical Society.

This 13-member Commission, which includes two physicians, is empowered to study the use of court-ordered arbitration in medical malpractice actions. The Commission is also authorized to consider other alternate forms of dispute resolutions, including mediation and mini-trials. The Commission may submit a report, including recommended legislation, to the 1990 or 1991 General Assembly.

Other studies of interest which will be conducted by the Legislative Research

Commission (LRC) include the Human Resource Study which will be looking at such issues as certificate of need, health insurance, mammogram and pap smear insurance coverage, infertility treatment and long-term care insurance. The Human Resource Study will be chaired by Senator Russell Walker (D-Randolph).

In addition to these newly established study commissions, the Medical Society continues to be involved in the Birth-Related Neurological Impairment Study Commission. This Commission, which was established in 1988, is addressing the issue of whether the needs of birth-related neurologically impaired children can be better met by removing the resolution of potential lawsuits involving these children from the civil justice system.

All of the newly created studies are in the process of having members appointed to them by the Speaker of the House and Senate President Pro-Tempore. We anticipate that Commissions will begin their work in early November.

A number of legislative commissions will soon begin meeting to address medical and legal issues of great interest to physicians.

Washington

(Continued from page 4)

These issues are tied up in the budget reconciliation process. Differences between House and Senate reconciliation bills must be worked out in conference before we know definitely how physicians will be affected. We will follow the process closely and will report the final outcome in this column.

Keeping a vision alive



The Mecklenburg County Medical Society has a library and it has an interesting history. It was established in 1909 as a “journal exchange” by several Charlotte area physicians. They believed it would be advantageous to swap medical periodicals to which each subscribed so that a larger volume of medical literature would be available to all. These physicians had the foresight and dedication to realize how vital a good library is to the growth and well being of a community.

The Library flourished for over ten years, but then interest began to wane, chiefly because a full-time librarian was not employed. By 1930, doing away with the Library was being considered: journals had been lost, dues were almost hopelessly in arrears and interest was at a low ebb. Instead, a director was appointed and an organizational restructuring was imposed. And the Library has improved ever since.

The Library has gone through a number of name changes over the years. In 1922, the 25 dues-paying members called it the “Library Club”; in 1950, it became the “Physicians Exchange Library.” In 1949, the Mecklenburg County Medical Society assumed financial responsibility for the Library and it underwent several name changes before becoming what it’s called today: The Medical Library of Mecklenburg County/ Bryant L. Galusha, MD, Learning Resource Center of Charlotte AHEC.

Dr. Galusha, the former Director of Charlotte’s Area Health Education Center (AHEC) and Executive Vice-President of the Federation of State Medical Boards of the United States, is retiring this year and will be returning to Charlotte this fall.

In 1953, the Library was the largest medical library in the south not connected with a medical school and it maintained a membership in the American Medical Library Association. The heart of the Library collection is its medical and allied health journals. Over 500 titles, ranging from *Academic Medicine* to *Year Book of Surgery* and starting from 1883 (*JAMA*), are available to Medical Society members and other healthcare professionals in the community.

The Library has a staff of three full-time professional librarians, three technical assistants and one part-time employee. As the Charlotte regional AHEC Library, it serves healthcare professionals in a nine county area: Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Rutherford, Stanly and Union counties. In 1988, the staff began concentrating on serving more of their constituents through extensive outreach efforts. They achieved this in part by computerizing their current system.

The Medical Library is primarily supported by the dues of members of the Mecklenburg County Medical Society, as well as Charlotte Memorial Hospital, (Continued on page 7)



North Carolina Medical Society

Fall 1989

Dear Member :

The NORTH CAROLINA MEDICAL SOCIETY introduced its magazine subscription program a few years ago. Hundreds of members have already taken advantage of the opportunity to purchase magazine subscriptions at greatly reduced prices. If you have not yet done so, why not simplify your magazine ordering procedures and save money as well.

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We hope that you continue to use this program and that you derive years of enjoyment from it.

Sincerely,

George E. Moore
Executive Vice-President

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American Heritage	8	24.00	24.00	Details	10	12.00	12.00
Amer. Photog. [Special: 8 iss]	11.95	5.98		Discover	12	27.00	13.50
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Car Craft	12	15.94	9.97	Food and Wine	12	22.00	15.00
Changing Times	12	18.00	9.97	Football Digest	10	14.95	11.97
CHILD (Fashion)	6	12.00	10.00	Forbes	28	45.00	45.00
Childrens Dig: age 8-10	8	11.95	9.97	Fortune	26	47.97	37.50
*Colonial Homes	6	14.97	7.97	GLAMOUR 1 yr	12	15.00	12.00
Compute	12	19.94	9.97	2 yrs	24		22.00
CONDE NAST 1 yr	12	24.00	12.00	* <i>Good Housekeeping</i>	12	15.97	9.97
TRAVELER 2 yrs	24		22.00	<i>Gourmet</i>	1 yr	12	18.00
*Connoisseur	12	19.95	10.00	2 yrs	24		25.00
Consumers Reports	12	18.00	18.00	GQ 1 yr	12	20.00	15.00
* COSMOPOLITAN	12	24.97	15.00	2 yrs	24		28.00
Country Home	6	16.97	13.97	Golf Digest	12	19.94	11.98
*Country Living	12	15.97	9.97	Golf Illustrated	10	15.00	8.97
*Cross Country Skier	5	12.97	12.97	Golf Magazine	12	15.94	9.97
Cruise Travel	6	12.00	9.97	*Harpers Bazaar	12	16.97	8.97

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Body Medical/Body Legal

Later this month you will receive, via UPS, a carton containing the first installment of a book entitled *Body Medical/Body Legal*. Written by Arlene J. Diosegy, JD, an attorney with considerable experience in health law in North Carolina, the book will provide you with much of the guidance you will need to deal with such medicolegal topics as informed consent and mutual responsibilities in the doctor-patient relationship.

What you will receive in this first shipment is a specially-designed three-ring binder, a preface and introduction, the first three chapters and the index. Other chapters will be written, about three at a time, printed and sent to you over the next few years; an entirely new index will ac-

company each installment.

Chapters I, II and III treat, respectively, informed consent, the Medical Practice Act and the physician-patient relationship. We know you will find them a helpful resource when, for example, you give a physical exam to a patient at the request of his or her employer and are unsure of your legal responsibilities to both employer and employee or with which one of them you have, in fact, established a physician-patient relationship. You may not like the answer, but at least you will know.

Be on the lookout for *Body Medical/Body Legal*. It is a reference book for your library that you will return to again and again in years to come for answers that have always been just out of your grasp.

Vision

(Continued from page 6)

Presbyterian Hospital, Charlotte Community Hospital and Charlotte Rehabilitation Hospital. Supplementary support is obtained through local organizations, associations, memorials and state or federal grants. The Medical Group Managers' Charlotte Chapter will soon donate over \$2,000 worth of practice management texts to begin a new section of the Library.

The Library is in the final stages of a remodeling that began in early July. The project's focus is aimed at both aesthetic and functional improvements.

The Library is located on the ground floor of the AHEC building on the Charlotte Memorial Hospital and Medical

Center campus. It occupies approximately 5000 square feet on one level with an additional mezzanine area and it operates sixty hours per week, Monday through Saturday.

The AHEC library is the only one in the state with a separate Library Board. Since 1977, the Board has consisted of four Mecklenburg County Medical Society members and three physicians from Charlotte Memorial Hospital. Its new board consists of one physician from the Medical Society and one from Memorial Hospital, as well as the AHEC Director, a nurse, a pharmacist, a dentist and a representative of allied health professions.

President's message

Changing of the guard

By the time you read this letter, the NCMS annual meeting will have occurred and my 18 months of being your President will have ended.

Let me indicate here and now my appreciation for the trust you placed in me and offer my deepest thanks for all the help I have received from the membership and our staff. During my outgoing address I spoke about this area in more depth. I hope that I will now be able to do less and not feel guilty about it.

In Reggie Harris you have a strong and dedicated leader — one who has served medicine well in his specialty society and the AMA, as well as the NCMS. I have complete confidence that Reggie, with a strong Executive Council, will carry out the mandates of the Planning Council and lead our Society to heights heretofore deemed unrealistic, if not impossible to attain.

Planning Council

On Sunday, October 8th, the Executive Council approved the recommendations of the Planning Council. This Council, under Tom Dameron, comprised 16 members and represented a broad spectrum of our Society and senior staff. A good deal of time and effort went into the development of 35 strategic objectives. These objectives should carry us into the 90s knowing where we want to go and how we should

get there. You will be interested to know that emphasis has been placed on the following five areas studied by the Council:

1. Membership: Eligible physicians and medical students should begin an active participation as members of our Society.

2. Planned use of resources: To accomplish our goals and purposes we need to maintain financial, staff and facilities effectively.

3. Relationships with physicians and physician organizations:

Develop and strengthen close associations and sharing of information between and among Society members, county medical societies

and specialty societies as well as the AMA.

4. Government relations: Strive to have physicians fully participate in the political, legislative and regulatory processes of our state and nation.

5. Communications: Inform the membership of matters of importance to them and their profession. Educate the public about healthcare issues and generate media interest in and coverage of the activities of the Society and its members.

*It's hunker down time
for medicine.*

Let this be your wake-up call.

New governance

Our new governance system is now in place. Just because the system is in place does not mean that it will serve us better. It can act as a vehicle to take us where we want to go, but there must be those informed, dedicated and motivated members to act as drivers. I hope that each of you will decide to play a role in helping our Society become a more effective and a more efficient organization. You can do so by keeping informed; becoming active at the committee, delegate and council levels; becoming active in politics at the grass-roots level and beyond; supporting your county society and hospital staff; supporting the NCMS Foundation; keeping your patients informed about their own ills as well as the ills of our society; being active in your community; and in many other ways. If you **think you can help us** have a better Society, **you will help us**. It's "hunker down" time for medicine. Let this message be your "wake-up call."

NCMS Foundation

You have read elsewhere about the NCMS Foundation. I feel that our Foundation is well on the way to becoming a potent force in the improvement of health care throughout North Carolina.

The \$4.5 million from the Kate B. Reynolds Health Care Trust will be put to good use throughout the years, but we will need new funds and the involvement of

our membership to focus on other areas necessary to round out the total healthcare picture. Underserved areas will be the target for the Kate B. Reynolds monies, but other important areas, including physician education and leadership training, patient involvement in cost containment and wellness programs, business and industry involvement in employee education, hospital involvement in staff development, shared services and many similar areas need to be addressed by organized medicine working in partnership with others. I know that our Foundation will find the necessary resources — fiscal and manpower — to effect needed changes and to bring better health care to our citizens.

At some time you will be asked to participate. I ask you to say **yes** and to broaden your horizons as you look at North Carolina health care. An increase in the quality of health care and a better life will come only with a determined commitment from us all. As Emerson said, "No man can sincerely help another without helping himself." When you are asked to help the Foundation you will help yourself by responding. Contact the NCMS Foundation, PO Box 27167, Raleigh 27611, (800) 722-1350. Ask for Joyce.



Ernest B. Spangler
Ernest B. Spangler, MD
President

Planning to retire?

Should you sell your medical practice? What assets make it valuable? What do you need to do before you close your office? What agencies must you notify before you retire? What should you tell your employees? Your patients?

These are just a few of the questions that can make retirement from medical practice a complicated process. But it doesn't have to be if you begin to address these issues early.

Planning for Retirement from Medical

**Careful consideration
should be given to choosing
the type and terms
of a retirement plan.**

Practice is a booklet designed to help make the retirement process smooth and rewarding. It contains retirement planning information such as choosing a retirement plan,

estate planning for the senior physician, phasing down your practice and more. It is a general guide for retirement planning and it explores personal planning aspects that fit your individual needs.

The first chapter of this 46 page book explains the standard Keogh plan, which may be the best retirement plan for solo physicians close to retirement but may seem inappropriate for physicians in group practice. On the other hand, physicians in group practice may consider a defined benefit plan their best alternative.

Many physicians approaching age 65 have amassed fairly substantial estates

without realizing it. When life insurance and retirement benefits are taken into account, however, a physician's "worth" may be sizable. Chapter four highlights some of the major considerations in estate planning for the senior physician.

Senior physicians preparing for retirement find that adding a younger colleague to their practice is essential when they begin to phase down their practice. Solo practitioners should consider recruiting a potential partner to assume the practice and eventually to buy them out. The senior member of a group, and the other partners as well, may recognize that impending retirement requires attracting a qualified replacement at the partner level. This booklet explains what steps need to be taken to make the recruiting process easier.

Planning for Retirement from Medical Practice was written by Leif Beck of the Health Care Group in Bala Cynwyd, PA. Mr. Beck is a long-time friend of the North Carolina Medical Society and author of the monthly practice management newsletter, *The Physician's Advisory*.

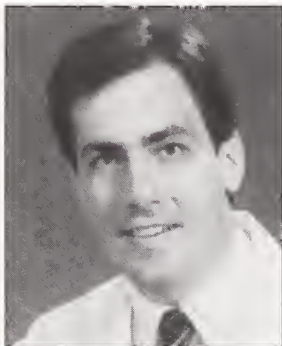
Planning for Retirement is available free of charge to North Carolina Medical Society members. If you would like a copy write Christe Broadwell at NCMS Headquarters.

Names in the news

The American Society of Internal Medicine (ASIM) has named New Bern internist **E. Rodney Hornbake, MD**, as "Young Internist of the Year."

Dr. Hornbake joined Eastern Carolina Internal Medicine, PA, in 1979.

ASIM — a national medical specialty society which represents more than 20,000



internists nationwide — presents this annual award to an internist who, while under 40, has made outstanding contributions to the social and economic aspects of internal medicine and has helped to further the goals and objectives of the society. Dr. Hornbake is the 18th recipient of this prestigious award.

• • •

Jonnie Horn McLeod, MD, President of the Mecklenburg County Medical Society and an employee of UNC-Charlotte, was among eight outstanding state employees who recently received the 1989 Governor's Award for Excellence.

• • •

The American College of Emergency Physicians (ACEP) has elected **E. Jackson Allison, Jr, MD**, as Vice President of its board of directors.

Dr. Allison joined East Carolina University School of Medicine in 1978 as professor and chairman of the Department of Emergency Medicine. He also is chief of service in the Emergency Department at Pitt County Memorial Hospital in Greenville.

Dr. Allison received his medical degree in 1975 from the University of North Carolina School of Medicine and completed his residency in family medicine. He is board-certified in both emergency medicine and family medicine.

(Continued from page 2)

Medicare + State insurance

Equicor's claims processors in Tennessee are running into problems with claims for Medicare beneficiaries who also are insured by the state of North Carolina. They often receive HCFA 1500 forms with block 9 filled in with the words "state comprehensive," instead of the correct name of the plan, for example, "State of NC Teachers and State Employees Comprehensive Major Medical Plan." The result is a slowdown in processing.

People who are insured by Medicare and the state of North Carolina will have their claims forwarded to the state's processor by Equicor (this is called a crossover) if the correct information is noted on the claim.

Calendar ...

- November 19-21** **4th Annual National Forum on AIDS and Hepatitis B**, Washington, DC. Forum will examine strategies to control the spread of these bloodborne diseases by hospitals, laboratories and healthcare professionals. Call (301) 656-0003.
- December 6-8** **The Sixth Annual North Carolina Health Promotion and Wellness Institute**. The 3-day program will be held in Raleigh. Contact Jacqueline Rollins at (919) 755-8018.
- December 8** **The Fourth Annual Symposium on Infectious Diseases** will be held at the Carolina Inn in Chapel Hill. For further information contact Brenda Mauer at (919) 966-4032.
- January 4** **Medical Review of North Carolina** will present a data profile of the outcomes of MRNC review followed by a panel discussion at the Holiday Inn, Goldsboro from 10am-1pm. Physicians wishing to attend should register via their hospital's PRO contact Carla Elam at (800) 682-2650 no later than December 13th.
- March 28-31** **1990 Spring Conference** will be held at the Pinehurst Hotel in Pinehurst.
- July 6-8** **1990 Sports Medicine Symposium** will be held at the Shell Island Resort and Convention Center at Wrightsville Beach.

Deceased physicians | New product line

Barnhardt, Albert Earl, Kannapolis
Campbell, Joseph Lester, 81, Wilson
Cathell, Edwin Jennings, 83, Lexington
Creech, James Rembert, Sr, 69, Thomasville
Gillenwater, Robert Wayne, 33, Jacksonville
Hawes, Charles Forest, 82, Rose Hill
Hornstein, Norman Mark, 74, Southport
Leonard, Jacob Calvin, Jr, Lexington
Outland, Robert Boone, Sr, 80, Rich Square
Smith, Joseph Pinkney, Sr, 66, Gastonia
Spencer, Benjamin Decatur, 72, Matthews
Stroupe, Albertus Ula, 84, Mt. Holly
Wannamake, Edward Jones, 93, Charlotte
White, James Alfred, Jr, 62, Winston-Salem
Wright, Charles Newbold, Jarvisburg

The Dillard Health Care Program would like to announce a new product line: Ames/Miles Laboratory Diagnostic Testing. For more information contact your local Dillard representative or Frances Spivey at (800) 632-0433.

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North Carolina
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December 1989
Volume 50
Number 12

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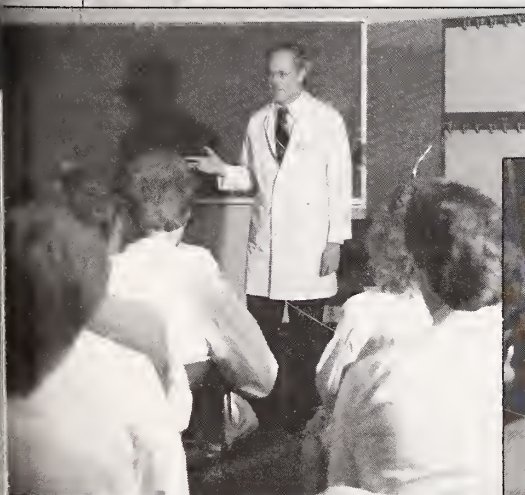
North Carolina Medical Journal

For Doctors and their Patients

Special Issue

The North Carolina Area Health Education Centers Program

Eugene S. Mayer, M.D., M.P.H., Guest Editor



- Forum on Medical Education • Forum on Health Manpower Development
- Community Based Medical Education
- Information Network and Professional Competence • Health Manpower Issues

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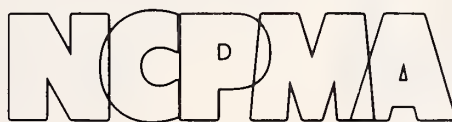
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NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

December 1989, Volume 50, Number 12

(ISSN 0029-2559)

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FOR DOCTORS AND THEIR PATIENTS

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About the Guest Editor



Eugene S. Mayer, M.D., M.P.H., is guest editor for this issue of the *North Carolina Medical Journal* on the North Carolina Area Health Education Centers (AHEC) Program. Dr. Mayer directs this statewide program which is housed in the Office of the Dean of the School of Medicine at the University of North Carolina at Chapel Hill. He also serves as Associate Dean and as Professor of Family Medicine and Medicine at UNC.

A 1960 Phi Beta Kappa graduate of Tufts University, Dr. Mayer received his medical degree from Columbia University and completed a year of internship at the Columbia-Presbyterian Medical Center prior to being drafted for service in the U.S. Public Health Service, from which he was assigned to the U.S. Peace Corps, to serve as staff physician in Turkey from 1965-67. In 1971, he obtained an MPH from Yale University, and completed residency training in preventive medicine at the Yale-New Haven Medical Center. In 1971, Dr. Mayer came to Chapel Hill to work with the AHEC Program.

Dr. Mayer's interests, extending from his work in Turkey, are in the relationship of health manpower maldistribution to the professional isolation common to underserved rural and urban areas. In particular he is interested in methods for lessening this isolation through university/community partnerships which help bring the academic process closer to the practice setting.

These interests have resulted in his serving as a consultant to numerous state governments, federal agencies, community hospitals, and medical schools throughout the nation and in several foreign countries. In addition, he is recognized as a national leader for AHEC Programs in 30 states.

Among his community activities, Dr. Mayer has been active with organized medicine. He has served as President of the Durham-Orange County Medical Society and as Commissioner and Vice President of the North Carolina Medical Society. He recently chaired a blue-ribbon Task Force that resulted in a major overhaul of the organization and governance of the state society.

Dr. Mayer has served as a member of the State Health Coordinating Council and as a member of the Governor's Task Force on Nursing. He is a member of the North Carolina Institute of Medicine and a member of the Board of Directors of the Orange-Person-Chatham Mental Health Center. Many university committees take his time. Recently he served as co-chair of the Case Statement Committee that produced guidelines from the faculty for the upcoming \$200 million Bicentennial Campaign of UNC-CH.

□

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From the Guest Editor

Long before anyone heard of the Area Health Education Centers (AHEC) concept, medical schools had developed off-campus educational activities through direct affiliations with hospitals, physicians' offices, and other health agencies. These activities met certain needs of the medical schools and the affiliated agencies, but were only indirectly related to the health care needs of a state or region.

The AHEC concept put forth by the Carnegie Commission on Higher Education in 1970 added a new dimension to the "hub and spoke" model described above. The new element was to be a new type of institution that would serve as a regional education and training center. These centers were to differ from the affiliated hospital model in two important respects. First, they would move beyond medical education to include education of all health professions. Second, the regional center, or AHEC, would define a geographic region within which it would work in order to help improve the recruitment, retention, and quality of health manpower in communities throughout the region.

Today AHEC activities take place in about thirty states with more being added each year. Congressional support has been strong despite repeated efforts by the Administration to end all health manpower programs as a budget reduction device.

The North Carolina AHEC Program is strong and has helped create a statewide classroom that has lessened the ivory tower image of the four academic medical centers while bringing academic stimulation to community practitioners in communities throughout the state.

AHEC development in North Carolina has been a natural extension of the state's growth and development. Most importantly, the state is fortunate to have urban centers that are located in each section of the state. Since the major hospitals in several of these urban centers had already committed, or were ready to commit to programs of medical and health professions education, it was easy for AHEC to build upon this base.

Also, as the state entered the 1970s, it already had some regionalized educational activities in place through the Regional Medical Program and through the rotations of a small number of medical students and residents to community settings. These early efforts received support from many sources including the Duke Endowment, the Kate B. Reynolds Health

Care Trust, the Z. Smith Reynolds Foundation, community hospitals, the schools of medicine, and state government.

Entering the 1970s the state also had strong leadership from Dr. Isaac M. Taylor, who was Dean at the UNC School of Medicine, from Dr. W.R. Berryhill, Dean Emeritus, who directed the UNC School of Medicine's early outreach efforts, from Mr. Glenn Wilson, who led the effort to translate the affiliated-hospital concept to the AHEC concept, from Mr. William C. Friday, who served as a member of the Carnegie Commission that proposed the original AHEC concept, and from Dr. Christopher C. Fordham, who championed the concept with the UNC-CH medical faculty in the early 1970s while serving as Dean.

Additionally, the state had a political climate which was concerned about ways to improve physician supply and distribution and a General Assembly which had a long history of supporting health professions education, especially if it bore the promise of better services for citizens in rural counties.

In the early 1970s, the General Assembly provided funds for the Office of Rural Health Services, the East Carolina University School of Medicine, the Department of Family Medicine at UNC, the admission of North Carolina residents to the two private schools of medicine, the expansion of the UNC-CH School of Medicine, the training of physician extenders, and the development of the AHEC Program.

This history provides a strong underpinning for the AHEC Program—especially when it is coupled with the substantial support shown for community-based medical and health professions education by the community hospitals and their medical staffs as well as by a great number of other health agencies and by most professional associations.

Although AHEC has stimulated a complex network of linkages between academic centers, service institutions, and professional associations, and has contributed to an improvement in the distribution of health manpower with an emphasis on primary care, its potential for helping to address tomorrow's manpower problems is very real. This potential would be clear to those who agree with John Naisbitt in his book, *Megatrends*, where he indicates that the complex problems of modern society require solutions that can be brought about only by partnerships between institutions; partnerships that are built

upon principles of decentralization and regionalization with the help of an infrastructure of modern communications technology.

The AHEC Program in North Carolina is the embodiment of these principles and hopes to play a constructive role in meeting the health manpower needs of tomorrow. In the process, the AHEC network of relationships which lessen the ivory tower image of the academic medical centers also enriches them by virtue of their direct contact with the health service sector. In a thoughtful presentation before a recent national AHEC audience, Dr. Stuart Bondurant, who, as the current Dean of Medicine at UNC, strongly supports AHEC, indicated that the AHEC approach is the wave of the future in health professions education, a wave that should also serve as an example to other sectors of society that might benefit from increased collaboration between the academic sector and the service sector.

This edition of the *North Carolina Medical Journal* is devoted to sharing the story of AHEC development in North Carolina, to sketching its promise for the future, and to thanking all who have worked together as teachers and learners to contribute to its growth and development.

The Guest Editor is indebted to Ms. Lisa McGuire, Managing Editor, for guidance, support, wisdom, and hard work beyond reasonable expectations. In addition, special thanks are due to Ms. Kathleen McDonald and Dr. Clark Luikart for organizing the two forums and to Mr. Randall Mullis for the preparation of health manpower data. As usual, the wisdom of Dr. Donal Dunphy permeates the work of the Guest Editor. Thanks also go to Ms. Dorothy Conklin, Ms. Denise Siler, and Ms. Angela Watkins for preparation of the manuscripts. Finally, thanks are due to all who took the time to prepare the articles for this edition of the *Journal*. □

—Eugene S. Mayer, M.D.

Editors note: One of the purposes of the *North Carolina Medical Journal* is to record a picture of medical practice in the state. This issue of the *Journal* superbly meets that goal.

— Eugene A. Stead, Jr., M.D., Editor

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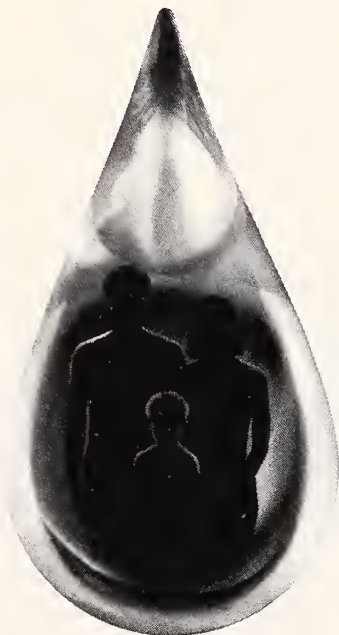
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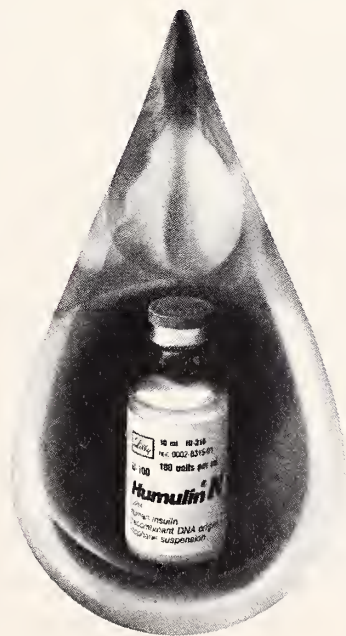
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The North Carolina Area Health Education Centers Program

Eugene S. Mayer, M.D., M.P.H.

In 1970, the Carnegie Commission on Higher Education issued its report, "Higher Education and the Nation's Health."¹ One of its recommendations called for the creation of 126 Area Health Education Centers (AHEC) throughout the nation.

The Commission reasoned that the development of health professions education centers at community hospitals that were already serving as referral centers would result in regional manpower development programs for physicians and other health professionals. These centers would enhance the professional attractiveness of underserved communities which would be more likely to recruit and retain needed practitioners while helping those practitioners already in the area keep up to date.

In 1972, the Department of Health, Education, and Welfare funded the first eleven AHEC projects, including the one at the School of Medicine of the University of North Carolina at Chapel Hill (UNC-CH). As of August, 1989, AHEC Projects existed in nearly 30 states.

Although the North Carolina AHEC Program has developed extensive statewide education and training activities, it would be a mistake to conclude that off-campus activities in medical education only began with the AHEC Program. Dating back 30 years to its expansion to a four-year program, the UNC-CH School of Medicine has had a mandate to meet the physician manpower needs of the state. Berryhill reviewed this history and noted that in the late 1960s the General Assembly appropriated funds to support the development of off-campus rotations of UNC-CH medical students to selected affiliated community hospitals willing to host a small number of full-time medical school faculty.²

With federal AHEC funding in 1972 the North Carolina AHEC Program created three AHECs. These were the Charlotte AHEC, the Wilmington AHEC, and the Area L AHEC. In 1974, with state funding, the Program expanded to its full

complement of nine centers serving each region of the state (see figure 1).

The North Carolina AHEC Program has evolved to serve as a bridge between the academic and the service sectors. Although these sectors have decidedly different missions, each benefits from carefully constructed and adequately financed relationships with the other.³

Although based in one school of medicine (UNC-CH), the Program has active and productive contractual partnerships with the Bowman Gray School of Medicine at Wake Forest University, the Duke University Medical Center, and the East Carolina University School of Medicine, each of which is the primary academic affiliate of one AHEC. The AHEC Program Central Office oversees the entire system and is accountable to the Board of Governors of the University of North Carolina through the Dean of Medicine.

The AHEC partnership, however, extends well beyond the schools of medicine. Contracts link the UNC-CH Schools of Dentistry, Nursing, Pharmacy, and Public Health to the AHECs. Through a variety of written agreements the AHECs, in turn, have ties with health science schools on other campuses of the UNC System. Agreements also exist with private colleges and universities, and with community and technical colleges.

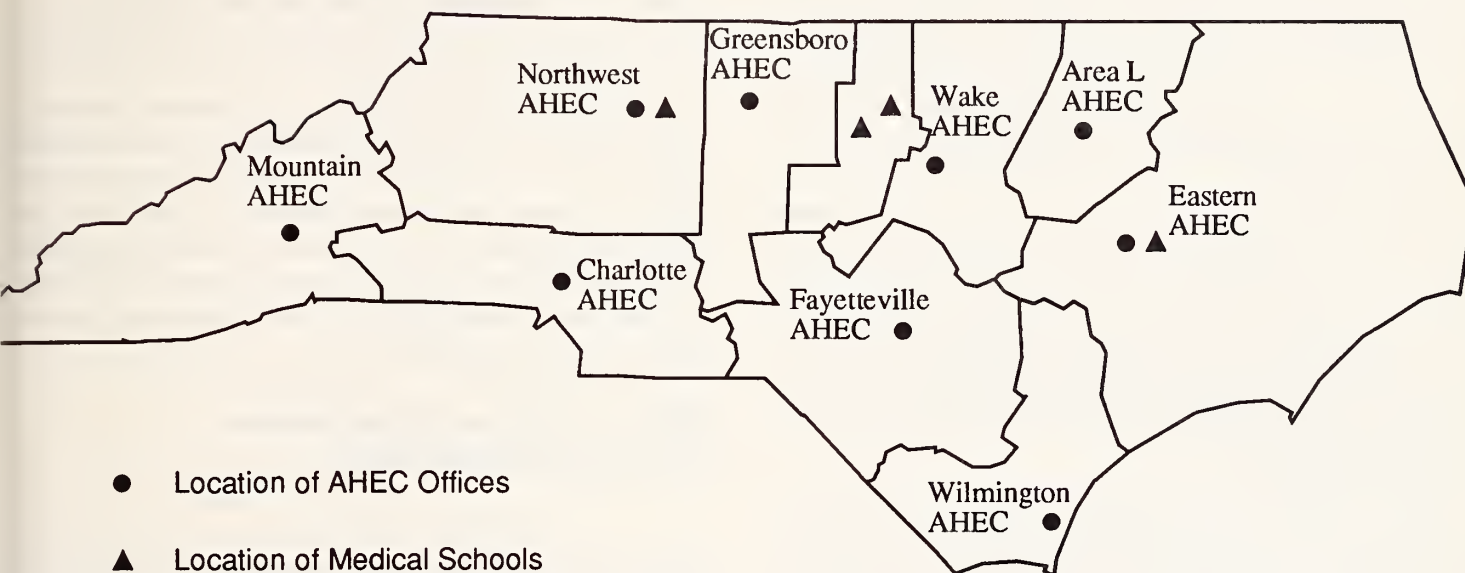
Each AHEC is the responsibility of an autonomous non-profit corporation. While autonomous, each AHEC is contractually linked to the AHEC Program with which it negotiates an annual work plan and budget. This assures that the nine AHECs maintain a common mission and serve common goals, while also meeting specialized regional needs. The AHECs have a variety of advisory mechanisms that bring together thousands of health professionals and support personnel each year to advise on program needs.

Despite competitive pressures in their own marketplace, the major community hospitals hosting AHECs have shown a reasonable willingness to have their own staffs working side by side with AHEC faculty to conduct training programs that benefit all institutions in their service areas. This is the primary reason that the AHEC Program has worked in North Carolina.

Dr. Mayer is Associate Dean and Professor of Family Medicine and Medicine, UNC-CH School of Medicine, and Director of the North Carolina AHEC Program.

Figure 1.

North Carolina AHEC Regions



Accomplishments

Medical Students: One of the major accomplishments of the Program has been to help the four medical schools decentralize their curricula to community settings. The organizational structure and the fiscal resources of the AHEC Program have allowed this decentralization to occur in an orderly and efficient manner with the guarantee of excellent supervision.

The four schools of medicine use AHEC sites for regular rotations of students. Figure 2 (page 676) shows where these rotations take place. For the UNC-CH School of Medicine, AHEC rotations are a major part of the curriculum. Of the 320 third- and fourth-year medical students, about 110 students are off-campus in AHEC settings at any given time. The majority of AHEC rotations occur in hospital settings, with ambulatory experiences accounting for about 20% of the curriculum time. Although the percentage of the total curriculum spent in AHEC settings is less for students from the other medical schools, such rotations are an increasingly important part of each curriculum.

In order to provide adequate supervision for these student rotations, the Program involves 117 full-time medical faculty in AHEC settings. In addition to these full-time faculty there are many part-time faculty and a host of volunteer faculty from private practice, public health agencies, and community health settings. Approximately 30% of all private physicians in the state teach students and/or residents.

Other Health Science Students: Figure 3 (page 676) shows the distribution of the rotations of other health science students supported, in part, by the AHEC Program. The Program pro-

vides rotations for students in pharmacy, dentistry, nursing, allied health, and public health.

Primary Care and Psychiatry Residents: In primary care, 474 new residency positions have been created in North Carolina since 1974. The Program has state funding to provide partial support for 300 positions. Of these, 160 are in family practice, with the remainder in internal medicine, obstetrics/gynecology, and pediatrics. All four academic departments of psychiatry are also involved with the rotation of their residents to community sites. During 1988-89, 37 psychiatry residents are doing rotations in 22 community mental health centers.

Continuing Education: The AHEC Program is a network for information dissemination to health care practitioners of all types. Formal continuing education activities are one of the major products of the network. Figure 4 (page 693) shows the distribution of these programs. During 1988-89, 4,628 programs were conducted in 81 counties for 120,245 participants. The AHEC Program has become a statewide classroom that helps translate the latest research findings to the community practice setting.

AHEC-supported continuing medical education programs are a special subset of the total. During 1988-89, 2,367 programs were conducted in 81 counties for 46,266 participants. These programs ranged from one-hour lectures to programs of several days' duration. Since all programs are ultimately under the academic supervision of the Office of Continuing Medical Education at one of the four schools of medicine, all programs are able to provide professional credit approved by the American Medical Association and/or the North Carolina Medical

Society. Faculty for these programs come from the four schools of medicine, the AHECs, and the community.

Off-campus Degree Programs: During the past 20 years, it has become clear that many health personnel from nurses to public health administrators wish to upgrade their knowledge and skills by obtaining an advanced degree. However, it is not always possible for these individuals to leave their jobs to become full-time students. Also, community hospitals and health agencies, while generally supportive of advanced education for their staffs, do not wish to lose the employee's services during their studies.

To help employees and employers, the UNC-CH School of Public Health began an off-campus degree program for the Masters of Public Health (M.P.H.) in the early 1970s. The AHEC Program has been a partner in this since 1975. Today, two off-campus M.P.H. Programs are conducted in two parts of the state at all times. About 240 community health personnel have completed the programs, bringing advanced skills to their community agencies.

Since 1982 the AHEC Program has also supported off-campus baccalaureate degrees in nursing (BSN). Working with the UNC system's nursing schools in Charlotte, Greensboro, Cullowhee, Chapel Hill, and Greenville, the AHEC Program has supported five off-campus degree programs that have graduated 135 nurses who upgraded their Associate Degree to a BSN. Currently, 131 nurses are enrolled in a second round of five programs.

In addition, AHEC has supported an off-campus Masters Degree in Nursing (MSN) between UNC-CH, UNC-Charlotte and the Charlotte AHEC, and between East Carolina University (ECU) and the Wilmington AHEC. ECU and the Wilmington AHEC are currently conducting an off-campus Masters Degree in Social Work.

Technical Assistance and Consultative Services: The contributions of the AHECs to community practitioners go beyond formal educational programs. The AHECs have become regional support centers for practitioners needing assistance with their individual problems. For example, the laboratory supervisor of a rural health center needing to develop a laboratory procedures manual, or the director of social work services in a mental health center wanting to learn new methods of organizing services for the elderly have access to rapid consultation and technical assistance from regional AHEC staff. While these contacts are impossible to quantify they are perhaps the most extensive and important contributions of the AHECs to the professional practice environment.

One unique form of assistance is that of consultation clinics conducted by clinical specialists from the medical and dental faculties who travel to community settings. The clinics they conduct are designed to teach residents and students who visit the community with the faculty. For the year ending June 30, 1989, the program supported 3,088 clinic sessions in 78 communities.

Library and Information Services: As each article in this issue of the *Journal* makes clear, the AHEC network is an

organized mechanism for the distribution of information to the practitioner. Central to this is the Program's network of libraries and learning resource centers. Several of the following articles comment on the accomplishments of this network which, during the year ending June 30, 1989, filled 76,066 information requests, 8,765 electronic database searches, 126,021 circulation services, and 28,815 inter-library loans for practitioners and students throughout the state.

The AHEC library network ties practitioners into many national databases and provides training for those interested in learning how to conduct their own searches of the medical literature. Twenty-three medical librarians located at the nine AHECs assist students, residents, faculty, and practitioners. The Program has developed an on-line catalog of all audio-visual holdings in each AHEC library and in each of the four health science school libraries.

AHEC and the Distribution of Health Manpower

The goal of all AHEC activities has been to improve the distribution and quality of health manpower with an emphasis on primary care practitioners. One tangible outcome relates to the distribution of primary care residents who have been trained in an AHEC setting. Of the 251 family practice residents trained in AHECs between 1977 and 1988, for whom we know the practice location, 170 (68%) are practicing in North Carolina. Of these, 73 (43%) originally set up practice in towns of fewer than 10,000 people.

Figure 5 (page 713) shows the improvement in the ratio of physicians to population in the 86 non-metropolitan counties of North Carolina when compared with the comparably rural counties of the nation. Since 1973, the state has steadily improved its position on a relative scale. Figure 6 (page 713) shows how the improved physician to population ratio applies to each county.

For a social phenomenon as complex as the distribution of physicians, it is impossible to attribute clear cause and effect relationships. The AHEC Program and the state's Office of Rural Health Services have worked together to make a contribution to this improved pattern of physician distribution. So too have other programs, as well as our communities which have capitalized on their individual strengths and on the positive characteristics of life and professional practice in North Carolina.

Although the foregoing trends are positive, there are recent indicators to suggest that North Carolina is beginning to witness a reversal in some of its most rural counties. For example, during the period 1982-1987, 40 counties actually had a decrease in the number of primary care physicians despite the fact that many had an increase in total physicians. Although these decreases are small, in most cases, they are troublesome. These trends have only recently come to light and are now under investigation. Further reports will be forthcoming as data analysis is completed.

While disturbing in its own right, the potential negative impact of this loss of primary care physicians in our rural counties during recent years is magnified by the fact that since at least 1987, there has been a steady downturn in interest in careers in primary care by medical students across the nation.

AHEC Infrastructure and Fiscal Support: The AHEC network in North Carolina has grown and extended its services because of the support that has been provided by the General Assembly, community hospitals, community practitioners, and other community agencies which have provided both direct and indirect fiscal support to the Program.

As of July 1, 1989, the state budget of the program is \$31.5 million, of which \$4.5 million supports primary care residencies, \$21.5 million supports the faculty, staff and other operations of the nine AHECs, and \$5.5 million supports student costs, transportation costs, and faculty at the UNC-CH health science schools who regularly visit the AHECs to conduct programs for students, residents, and practitioners. Central to the mission of the Program was the appropriation of \$23.5 million by the General Assembly in 1974 for the construction of educational facilities at each of the AHEC sites.

In addition to state funding, community resources are also used for direct or indirect support of the AHEC network, accounting for an estimated 40% of the total AHEC budget. These resources assure a diversified and stable funding-base.

Because the physical size of North Carolina presents a challenge to communication and to the daily movement of students and faculty between the academic centers and the communities of the state, the Program has made a substantial investment in computers and other forms of communications technology for the efficient movement of this information. It has also developed a network of transportation services. Each AHEC has motor vehicles for transportation. In addition, the Program houses Medical Air Operations. This air service consists of five twin engine airplanes that are owned by the Medical Foundation of North Carolina and operated by the AHEC Program. The Program employs six full-time and two part-time pilots and flies about 625,000 passenger miles each year. This service is central to the Program's ability to allow faculty, who are already busy "at home", to spend time in community settings.

Next Steps

The AHEC Program has operated within the context of a series of long-range plans since its inception. The 1974 Plan set forth the mission of health manpower development and outreach activities in student education, primary care residency training, and continuing education. The 1980-85 Plan expanded these activities and added special attention to the library/information services network and to nursing. The 1985-90 Plan continued the strengthening of all earlier activities and added special initiatives in several areas requiring interdisciplinary activity: aging, health promotion/disease prevention, occupational/environmental health, and management training. It also in-

cluded a new AHEC initiative linking the four academic departments of psychiatry with the mental health system.

These three five-year plans have been prepared with input from community practitioners, community institutions, the AHECs, and the academic health science centers. In July 1990, the AHEC Program will publish its plan for the period 1990-95. Although still in developmental stages, the plan will most likely emphasize the following health manpower needs that are facing the state as it enters the next decade.

The Nursing Shortage: The 1989 session of the General Assembly produced legislation designed to help the state overcome its current nursing shortage. The AHEC Program was identified in many parts of the legislation and funds have already been appropriated for AHEC to expand its work in the area of nurse manpower development in association with the state's nursing schools, hospitals, and other agencies.

The Allied Health Manpower Shortage: A recent study of the Institute of Medicine of the National Academy of Sciences makes clear that we are facing a formidable shortage in allied health manpower. The AHEC Program has taken steps, along with the state's Office of Health Resources Development and the Alliance for Allied Health Professions, to convene the leaders of the allied health professions, the academic sector—both university and community colleges, and the service sector to address this challenge. During the first six months of 1990, it is hoped that these groups can arrive at a consensus with respect to the steps that need to be taken by each sector to resolve the problem.

The Distribution of Primary Care Physicians: The AHEC Program is working closely with the four schools of medicine to examine the recent deterioration in the distribution of primary care physicians, especially family physicians. One conclusion reached from these discussions is that the education of medical students and residents needs to be moved more into the ambulatory care setting.

The development of more ambulatory care settings as teaching sites will be a major challenge that will test the creativity and support of faculty, community physicians, and community service agencies. Well-supervised rotations will have to be developed in selected private group practices, faculty-run group practices, rural health centers, county health departments, hospital out-patient departments, and other sites.

This initiative, as part of the 1990-95 AHEC Plan, will usher in Phase II of the AHEC Program. In Phase I, medical education was decentralized—but largely to the AHEC hospitals and to selected physicians' offices. In Phase II the entire educational process will move even more into the community practice setting.

Minority Health Manpower Development: Despite previous gains, it is clear that added emphasis must be placed on the recruitment of young people from minority backgrounds to health careers. Although the state's university health science schools and community colleges have made efforts to recruit minorities to their programs, less has been done to make minority students in junior and senior high schools aware of the

challenges and opportunities in health careers. The AHEC Program will put added effort into this area.

Quality of Health Care Delivery: The manpower orientation of the AHEC Program for 1990-95 will recognize the growing societal concern for the quality of health services. The Program will strengthen its libraries and information services and increase their availability to practitioners in all one hundred counties. As hospitals, health agencies, and professional groups become more involved with quality assurance mechanisms it is likely that they will want educational programs geared toward the correction of self-determined deficiencies. The AHEC Program and its affiliated health science schools can help provide this programming.

Finally, the need for more effective continuing education programming will be addressed. Communications technology, computers, and the AHEC network make it possible to move beyond the one-hour continuing education program in the direction of organized curricula for the practitioner. It is now possible for groups of health professionals to take the same course in different parts of the state simultaneously. This, as well as several other educational situations, would be ideal for the use of interactive video communication which, while costly, is one of the technologies needing development in the coming years. □

Conclusion

The challenges facing the health professions, our service institutions, our academic institutions, and our communities regarding health manpower supply, distribution, and quality are more challenging and complex than ever before. Addressing these challenges requires partnerships and networks involving both the academic and service sectors with the help of government. The AHEC Program will continue to play its role in bridging these sectors within the context of an organized plan for health manpower development that is derived from each sector. □

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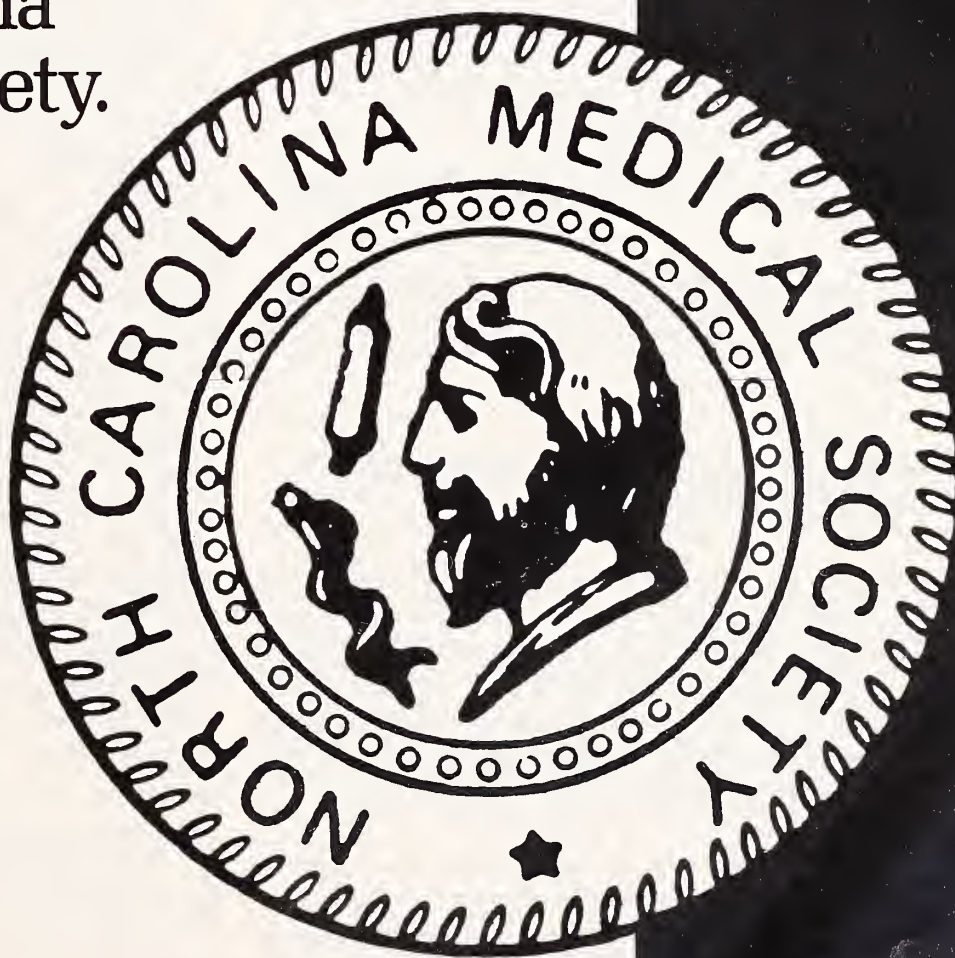
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Views From the Schools of Medicine:

The Community Dimension of Medical Education

Several recent reports have raised important issues for medical education.¹⁻³ Leaders in academic medical education in North Carolina were asked their views on the issues. Participants in this forum on medical education are:

William Anlyan, M.D., Chancellor, Duke University

Stuart Bondurant, M.D., Dean, School of Medicine, University of North Carolina at Chapel Hill

James Hallock, M.D., Dean, School of Medicine, East Carolina University

Richard Janeway, M.D., Dean and Vice President for Health Affairs, Bowman Gray School of Medicine at Wake Forest University

I Medical Education in Ambulatory Care Settings

"Substantial amounts of clinical teaching, and perhaps even the base of teaching in some generalist or primary care departments, should be moved to ambulatory settings, where the vast and increasing bulk of patient care occurs. This will require restructuring the third party reimbursement system to permit shifting some patient care funds to ambulatory and long-term care settings to cover certain costs of medical education."¹

"Graduate medical education (GME) in ambulatory settings is increasingly necessary in many specialties for optimal training and preparation for practice. [However], there are difficulties in financing GME in ambulatory settings related to lower levels of payment by third parties and to increased logistical problems in teaching. The current financing of GME results in disincentives for ambulatory training."²

If there is a need for more ambulatory-based medical education, is economics the only barrier to its implementation? What are some of the implications of more medical student and

residency education in ambulatory settings for "town-gown" relationships, career choice, and the quality of medical education?

Stuart Bondurant: Several powerful forces are driving medical practice away from the hospital toward an ambulatory care or dispersed operating mode. Unlike the situation in decades past, personal and social support systems are often as strong in the ambulatory settings as they are in the modern American hospital. The evolving technologies of health care, directed toward prevention, cure, or rehabilitation tend to be less dependent on large complex systems and, therefore, more dispersible. While some diagnostic and therapeutic procedures still require major expensive inpatient facilities, many interventions in prevention, therapy, and rehabilitation do not require expensive centralized support facilities.

I do not believe that economics is the only barrier to the implementation of ambulatory-based medical education. While many of the most exciting and challenging parts of medical practice now occur in the ambulatory setting for the reasons cited above, we have only recently begun the intensive and systematic development of teaching programs adapted to the contemporary practice of ambulatory medicine. We lack the generations of tradition and experience which have made our bedside teaching involving the hospitalized patient so effective for the last century. We are now beginning to develop this capacity, and many of our students are reporting that their most stimulating, challenging, and rewarding educational experiences occurred in the ambulatory setting.

I believe that this change will offer increased opportunities for participation of community-based physicians in medical education at all levels. The emphasis on education in the ambulatory setting will shift the balance of education toward prevention and rehabilitation. The challenge in this for AHEC is obvious.

Richard Janeway: Ambulatory-based medical education is a challenge which must be addressed if medical schools are to provide the leadership role in preparing students for what constitutes the great bulk of medical care in the future. The

continued neglect of ambulatory-based medical education will result in the production of physicians who are not prepared to properly care for the public.

The economic and political issues are major hurdles, but the educational issues are significant and must be resolved internally before the other issues can be overcome. Ambulatory-based medical education is not limited to primary care as we might often think. It involves almost all the medical and surgical specialties and consequently, we must deal with system solutions, not just departmental solutions.

The faculty of a medical school must be convinced that it is in their best interests to provide ambulatory-based medical education for medical students and residents. Under the current circumstances in most medical schools that will be a battle of the minds not easily won. The faculty sees extensive teaching time in the clinic as competing with research, and as a potential loss of clinical income due to the inefficiency inherent in the teaching process. Excellent teaching does take time. There is no way around the barrier except to make effective and efficient use of educational technology and to link research opportunities to the teaching of ambulatory medicine. Ambulatory care facilities and support systems need to be designed using the most efficient and effective methods possible for training as a complement to excellent clinical care.

Medical schools have the option to provide the entire ambulatory experience on-campus in their own facility with their own full-time faculty. I do not think this is a wise choice. Plans should include a mix of on-campus education and community-based experiences with volunteer faculty. I have seen our students return from their community medicine rotations excited about being treated like a physician for the first time and having obtained a sense of what "real world" medicine is all about. It seems clear to me that if we can convince our faculty, both full-time and volunteer, of the importance of ambulatory medical education, we can minimize "town-gown" tensions and improve medical education. The medical schools should take the first step to do an excellent job in preparing students for ambulatory medicine before they move to an off-campus setting such as a physician's office, public health department, or major clinic setting to receive the benefits of the community training we have fostered so successfully under the North Carolina AHEC Program.

William Anlyan: There is agreement that the time has come to move a substantial portion of the medical education of both students and house officers to ambulatory care settings—both within and outside the medical center.

A number of considerations make this a reasonable move. Because of the increase in complexity of tertiary care we feel a need to expose our students and residents to more "real world" settings—and to the wider range of diseases—so that they receive a more balanced view of the current state of medical practice.

In those settings where we have used community physi-

cians to teach medical students, there has been an improvement in "town-gown" relations and an appreciation by both the learner and the teacher of various issues in medical education in the community setting.

Finally, the need and demand for primary care physicians continues to grow, while the interest on the part of our trainees in this area continues to decline. The exposure to quality primary care physicians in ambulatory settings should help improve the recruitment of students and residents into primary care settings.

There are some concerns associated with this move into the ambulatory sphere. One concern is certainly economic: there are increased costs associated with the move. However, of equal concern are issues such as assuring adequate supervision of learners, standardization of the educational experience, assessing the quality of both teaching and clinical material, the availability of space, the convenience of the location of the ambulatory settings, and the training and compensation of faculty. These are all issues that need to be addressed.

James Hallock: The need for more ambulatory education to prepare future physicians to cope with changes in the practice of medicine is abundantly evident.

The barriers to ambulatory medical education revolve primarily around economic and teaching issues. Attending physicians in the outpatient setting may have to take more time to supervise, and therefore see fewer patients resulting in decreased dollars generated. Reimbursement for resident training has been linked to hospital inpatient care with little or no consideration given to ambulatory training. In the classical training mode of a hospital, patients are present for days, giving students the opportunity for multiple interactions for history taking and physical examinations. In the clinic setting, there is a much more limited patient interaction resulting in the need for increased numbers of teachers. Scheduling and adequate facilities create other issues in terms of accommodating students and residents in ambulatory settings.

It is my impression that increased ambulatory education, properly planned and implemented, will result in increased numbers of students selecting primary care practice. Anecdotally, a number of our residents who have participated in elective experiences in smaller and rural areas have chosen to practice in these areas. Therefore, having an experience in one of these areas may be a significant factor in career selection for residents.

II Continuing Medical Education (CME)

"Most physicians are keenly aware of the need for continued learning, and they participate in programs of continuing medical education. Lifelong learning and adaptation of medical practice to new knowledge and new techniques will be even more important in the future. Students whose general profes-

sional education has provided them with the learning skills, values and attitudes to continue learning throughout their careers will need easy access to information to pursue learning on their own. Information management systems will be of greater value than periodic, short courses in assisting practicing physicians in their pursuit of knowledge. As the general professional education of physicians is improved, the resources now being expended for the continuing education of physicians will have to be redirected toward the development of systems and programs commensurate with the needs of physicians whose education has prepared them to be independent, lifelong learners."³

What is your view of the future of continuing medical education and the role of the academic health science center in providing CME? What are the implications of your views for the university/community interface?

Richard Janeway: The future of continuing medical education is bright. Medical schools are beginning to curtail enrollments and residency review committees are attempting to limit the size of all but primary care residencies, so CME becomes the principal growth industry in medical education.

However, even in a growth industry, individual CME programs must keep three things in mind:

- 1 The continuing medical education program must be broadly perceived as useful by its beneficiaries or they won't attend.
- 2 The practicing community must be convinced that it is viewed as important by the faculty of the academic medical center. The CME program must demonstrate that mutual respect is a given in the relationship.
- 3 If expected to produce tangible benefits to the institution, continuing medical education must be thought of as part of a coordinated strategy that embraces a broad segment of the health professions and the lay public as well, a constituency too often neglected by academic medicine.

Adding to the pressures for CME is an increasing tendency to require evidence of CME for licensing and credentialing of physicians. By the time a physician is 15 years out of medical school an entirely new technology and knowledge base will have emerged. Many who have been in practice this long will require specific training in clinical procedural skills. Defining adequacy in a clinical procedural skill and teaching to that level will be a major role for the academic medical center in its CME programs.

Most physician's offices have computers which the secretaries and accountants use, but most physicians do not. Data bases of great value are readily available through the AMA, the National Library of Medicine, and others. The academic medi-

cal center's task, along with the AHEC system, will be to bring the practicing clinician to the level of casual familiarity with accessing relevant data by computer and using it to guide his or her further diagnosis and treatment.

James Hallock: Over the past two decades medical schools and their faculties have become more aware and supportive of their obligation to provide continuing education programs for practicing physicians. Five reasons for this increased commitment can be identified:

- 1 Successful and competent medical practice in today's complex and rapidly changing health care environment demands continuous updating of physicians' knowledge.
- 2 Medical education ideally is a continuum of learning which begins with the undergraduate experience and extends through the clinical lifetime of the physician. Medical schools are expected to assume more responsibility beyond the undergraduate and house staff years in this continuum.
- 3 Peer review activities locally and at the state level, coupled with requirements of hospital medical staffs and state and national professional associations, have heightened the awareness of physicians for their need to participate in CME activities.
- 4 The shift of many patient care programs and procedures from the inpatient to the outpatient setting has stimulated many physicians to learn new techniques and skills in order to provide this care effectively and competently.
- 5 Continuing medical education programs designed to meet the needs of physicians in the school's geographic service region are a well-recognized, vital part of maintaining positive relationships with these physicians who make up the majority of the referral base for the academic health science center.

The networking partnership of the health science schools and AHEC is unique in concept and scope, and serves as a superb model for other states whose academic medical centers search for avenues to reach rural communities.

An extensive array of programs of varying length are offered in the medical centers and in local communities. Mini-fellowships in many specialties are available to meet the individual physician's need. We believe demand for CME will continue to increase, and we are committed to continue our efforts to assist in meeting it.

Stuart Bondurant: I foresee continuing medical education becoming as substantial a part of the responsibility of the academic medical center as undergraduate or graduate education. I expect that effective forms of self-evaluation of physicians

will direct permanent continuing medical education so as to close the educational control loop. There is great opportunity for innovation in the efficient packaging and delivery of continuing medical education. My own prejudice is that the most efficient education will be that which is closely coupled to the practice of the individual physician even to the point of taking place in the practice setting. By providing highly useful continuing education, the university and the AHEC have the potential to build truly meaningful relations with the community.

William Anlyan: It is my view that CME is perhaps the most important phase of the physician's education. After all, only a relatively short portion of a physician's career is spent in formal medical school and residency training. A greater number of years is spent outside the academy. So more time, effort, and resources need to be directed toward maintaining and updating clinical skills and techniques throughout the years of practice.

I feel we have two roles to play in this ongoing medical education: First, we must teach the undergraduate medical student to learn independently. Thus, the groundwork is laid for a physician who will spend his or her life continuing to seek new information once the academic medical center has been left behind.

Our second role is to continue to provide faculty and technical assistance services to physician and non-physician health educators who are designing programs in continuing education. An academic health center can assist AHEC-based faculty in providing continuing education materials to the community practitioner; continuing education specialists within AHEC may well establish collaborative arrangements with academically-based faculty for the ongoing development of such teaching materials. And as more continuing education programs become community-based, the university interface with local faculty becomes even more important. University faculty should collaborate with the AHEC faculty to provide timely and useful programs for the community practitioner.

III Physician Supply and Distribution

"The geographic supply and specialty maldistribution of physicians which currently exists may be ameliorated by the overall supply of physicians, but it is a complex problem requiring solutions more broadly based than those focusing exclusively on medical education."²

"The present system of health care financing decreases the attractiveness of certain disciplines to students, and presents incentives which tend to produce a concentration of physicians in what may be oversupplied specialties."²

Will geographic and specialty maldistribution of physicians be ameliorated by overall growth in the number of physicians?

What is the role of education and training activities, especially those in the community, in the improved geographic distribution of physicians and in a more balanced selection of specialties?

James Hallock: Geographic and specialty maldistribution of physicians continues to be a vexing problem in health care delivery. Although there is some evidence (Rand Corp) that increased numbers of physicians result in wider geographic distribution, it is not clear that a further increase in numbers will affect this problem in rural or underserved areas. Since specialists tend to cluster near larger cities and larger centers of health care delivery, specialty maldistribution appears to be less influenced by numbers of physicians. The need to distribute primary care physicians to these underserved areas has been well described but remains a major problem nationally and in North Carolina.

Influencing the geographic and specialty career choice of physicians should begin with the medical school admissions process and continue through residency training. We believe that early exposure to primary care physician role models is very important and that medical schools must present the primary care specialties with an emphasis on their very positive rewards. By providing community-based training experiences, we are demonstrating our commitment to primary care education.

William Anlyan: It is likely that the geographic and specialty maldistribution of physicians will be affected by the expected growth in the overall number of physicians.

As more and more specialists have congregated in urban areas, the competition is growing—and the call for their services may be falling. Thus, a physician excess may be of some value in changing physician distribution and specialty training. This information should be appreciated by students entering and graduating from medical school, as well as by residents in selected programs.

Quality training opportunities in the community may well help recruit young physicians into community-oriented practices. We emphasize the word quality, since it is likely that substandard training opportunities would tend to confirm student biases against certain types of community practice, and thus aggravate the current problem. However, the presence of good educational programs within the community should enhance the move of young physicians to more primary care oriented fields.

Stuart Bondurant: Geographic and specialty maldistribution of physicians is being ameliorated by the overall growth in the number of physicians, although significant maldistribution of both types persist, and it is unlikely that growth in the number of positions alone will satisfactorily or efficiently resolve maldistribution problems.

In my judgment, education and training are among a number of factors which can influence the choice of specialty

and practice site. The power of education in influencing these choices is less than the power of other factors such as perceived personal fulfillment, lifestyle, and ability to fulfill family responsibilities. Thus, I support educational programs which familiarize students with the attractiveness of under-subscribed specialties and underserved geographic areas, and I expect that these programs will improve but not resolve the maldistribution problem. It seems to me that solutions to the maldistribution problem will require enhancement of the long-term attractiveness of the practice opportunity itself.

Richard Janeway: The current physician shortage and specialty maldistribution in many smaller communities will not be resolved solely by the overall growth in the number of physicians trained. We must recognize that no matter what is done, some communities will not be attractive practice sites.

We must continue to enhance the use of community-based student learning experiences as effective role models to encourage the practice of medicine in smaller communities. Access to library services and continuing medical education are important to the practicing physician to help eliminate the professional isolation of many of our small communities and the physician/academician in larger tertiary hospitals. Advanced communication technologies offer considerable promise to provide instant consultation and can be used to reduce professional isolation. These observations suggest an education and training role for academic medicine and the community physician if we are to be successful in providing medical care that is available and accessible by North Carolinians.

Academic medicine needs to provide continuing medical education and consultation clinics, promote primary care specialties within the academy, and offer opportunities to educate and train medical students in the community setting. In addition, medical schools must be strong advocates for the recruitment of students who may enter primary care. A properly formulated Resource-Based Relative Value Scale will be a step in the right direction to ameliorate some of the disparity of funding for primary care services needed in our communities.

We have made an excellent start through AHEC to forge a partnership between the academy and the practicing community for education and training activities. If we are to train physicians for the twenty-first century, emphasis on ambulatory medicine and ambulatory education must be one of our joint initiatives for the future. That is where our education and training activities should be focused if we are going to improve the geographic and specialty maldistribution which is facing us—*again*. □

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Views from the Health Care Service Sector of North Carolina

"What are the most compelling health manpower development issues facing North Carolina?" This question was asked of some leaders who shape the delivery of health care in the state:

James Bernstein, M.H.A., Chief, Health Resources Division, North Carolina Division of Facility Services

Ronald H. Levine, M.D., M.P.H., State Health Director, North Carolina Division of Health Services

C. Edward McCauley, FACHE, President, North Carolina Hospital Association

Ernest B. Spangler, M.D., President, North Carolina Medical Society

Donald E. Taylor, Director, North Carolina Division of Mental Health, Mental Retardation, and Substance Abuse Services

The following discussion represents issues ranging from medical education to the training of mental health professionals, from the rural distribution of practitioners to the shortage of nurses and allied health practitioners.

Ernest B. Spangler

Dr. Spangler, what issues, in your view as President of the North Carolina Medical Society, are most relevant to health manpower development in our state?

I feel that the development of a trusting relationship between the physician and the patient is the cornerstone of good medical practice. This relationship has been seriously altered in the last several years and I feel that we must roll back our thinking to that era when we depended more on faith and trust and less on testing and technology. We must assure and be reassured that our medical students are not evaluated mainly on MCAT scores and grade point averages, but that some mechanism will be developed where a perception of the applicant's ability to relate to people and to instill faith and confidence is taken into

account. Our institutions must also fine tune their curricula and our teachers must place emphasis on the doctor as the patient's advocate. Perhaps less emphasis needs to be placed on the high technology aspects of modern medicine that leads to a sense of aloofness as far as the patient is concerned.

Despite all our present trials and tribulations, medicine remains the most noble and rewarding profession. Young people should enter the profession willing to practice in an ethical manner as a true caregiver and also realize the need to become community oriented with their services. It is extremely important that the programs do what is necessary to ensure that students and young physicians realize the necessity of becoming the patient's advocate.

We are now rationing medical care whether we admit it or not. This rationing will increase with expanding technology, with the aging of our population, and with the increase of government as payor. Allowable charges by the government and other payors will be set in a manner which might severely affect the practice of medicine, and further ration services. Students and young physicians need exposure to allow them to adjust to these new developments.

We must also spend time in evaluating the product of our medical educational system. Perhaps we should spend at least half as much time in the evaluation of new doctors and young specialists as we do in the selection of students. If we do not do this, how will we know just what sort of product we are turning out and how will we know where the curriculum needs to be modified?

What strategies do you suggest?

I believe that there needs to be a change in the way that we select those young people who would enter our profession, a change in how we teach our students and residents, and a change in how we would evaluate physicians and their practices. We in the medical field need to change our views about political activity and the legislative process. I feel that we must realize that elected officials need to be educated in the area of medicine. They need to be given the background information that will allow them to bring forth good laws and to make proper use of our tax dollar in the health care field. Our teaching institutions,

including the AHEC system, need to impart to medical students, residents, and practitioners the need for active and informed participation in the affairs of government.

What do you think of the geographic distribution of physicians?

In too many instances we see that no doctor-patient relationship is possible because of the lack of physician availability. This happens not only in rural areas, but also, to a lesser extent, in isolated sectors of our more urban areas. The profession and AHEC must work to assure that routine medical care is available to the citizens of North Carolina within a reasonable distance from their homes. Through student selection, post graduate education loans, legislative activity and other innovative and enticing activities, the medical profession, the AHEC, the medical schools and others must continue to work on measures which would ameliorate this complex problem.

Teachers in medical schools and in post graduate education programs will play a large part in improving this tragic state of affairs. Our legislators must be apprised of ways which can be used to improve the health care of our people through proper distribution of physicians and allied health professionals. Local governments must be educated and brought to realize the importance of the role that they can play in attracting physicians to underserved areas. Our state and its citizens as a whole must realize that it is incumbent upon us to assure that all of our people have access to medical care.

Ronald H. Levine

Dr. Levine, what health manpower issues are of concern in the state's public health system?

The public health community faces critical health manpower issues which impact on our efforts to provide services of consistently high quality. Among the most serious is the loss of physician supervision of clinical services delivered at local health departments.

It has long been the practice in North Carolina for private practice physicians to provide medical coverage in health departments for prenatal, family planning, child health, and other clinical services. Salaried, full-time physicians are few and far-between in our public health system. Unfortunately, the availability of support from private practice has increasingly become curtailed in recent years, the most serious manifestation being the loss of physicians willing to provide obstetrical care due primarily to the difficult professional liability environment. Between March, 1985, and November, 1986, approximately 81 private physicians withdrew from participation in local health department prenatal clinics. Five clinics have been forced to close because of doctor loss. Three high-risk prenatal clinics lost their medical coverage. Each year the number of women who find themselves without resources to obtain private sector prenatal care continues to grow.

Have any steps been taken to overcome this problem?

Several approaches to overcoming the impact of this "hemorrhaging" of clinician-support are underway or are being considered. Some of the large health departments have hired full-time or part-time physicians. In smaller counties, resources from several counties have been combined to hire a physician to work in prenatal clinics. Funds were recently provided to the state to support two obstetricians and one perinatologist as part of a new obstetrical teaching service in Western North Carolina in association with the Mountain AHEC and the Department of Obstetrics/Gynecology at UNC-CH. This development enabled the continuation of the regional high-risk maternity clinic in Asheville.

The medical liability climate provides a significant disincentive to practicing physicians who would otherwise volunteer for local health department activities. In this regard, the 1988 North Carolina General Assembly appropriated funds (\$240,000) for a pilot program to provide partial support to offset the liability premiums of family physicians and obstetricians who agree to provide prenatal and obstetrical services in counties that are underserved in regard to these services.

You mentioned several issues facing the public health system relative to manpower. What are some others?

The demand for physical therapy services has been well documented both in North Carolina and in the nation. Findings indicate there is a proliferation of expanded, non-traditional work settings for physical therapists while there are shrinking fiscal and faculty resources to increase the supply of trained physical therapists. A recent survey of health departments in North Carolina indicated that more than 50% of therapists who were employed or contracted to an institution stayed 24 months or less on the job, and many left to move to another geographic area. This mobility is probably attributable to the opportunities of employment elsewhere, including the availability of better salaries and fringe benefits.

Another concern is the disproportionately low percentage of minority health professionals in some of our counties. In those North Carolina counties where the minority population exceeds 20% of the total population, few have minority health care professionals equal to or above their proportion in population. The proportion of minorities, specifically blacks and Native Americans, among public health professionals is relatively low and not likely to change appreciably in the near future without intervention. A reliable barometer for this unfortunate trend is minority student enrollment in the state's only School of Public Health, at UNC-CH. In 1980, the School of Public Health minority enrollment was 12%. Since then, minority enrollment has consistently declined and fluctuates between 8% and 9%. If we are ever to narrow the health status gap that exists between the majority and minority populations in this state, the role of the minority health care provider must be examined closely.

You've mentioned physical therapists and shortages of professionals in minority groups. How about the overall manpower picture in public health services?

Virtually all the remaining public health disciplines show excessive vacancy rates and turnover because of inadequate compensation and promotional opportunities. Nutritionists, health educators, health administrators, public health nurses, clerical support staff and local environmentalists are the backbone of a high-quality public health delivery system. Each and every one of these critical disciplines is currently suffering severe manpower shortages in both quantity and quality.

James Bernstein

Mr. Bernstein, your agency began its existence as the Office of Rural Health Services, and has recruited a significant number of primary care physicians to small towns. It continues to maintain a focus on rural medical manpower development. What are the issues for you in this forum?

The Office of Health Resources Development's primary concern in its rural health mission is to provide readily available and accessible primary care services to rural North Carolinians. Therefore, recruitment and retention of primary care physicians, in particular family physicians and obstetricians, is a priority of ours.

We know that our rural counties have lost ground in terms of the availability of primary care physicians since 1983. We also know that some family practice and other primary care residencies across the country and in North Carolina have not filled all their positions for the last two years. At the service level we are having more difficulty filling vacancies for family physicians and obstetricians than we had a few years ago. The swift demise of the National Health Service Corps scholarship program coupled with inadequate funding of the student loan repayment program has and will make our job significantly more difficult as we recruit physicians to some areas. These manpower trends are aggravated by the fact that the number of uninsured citizens in rural North Carolina is increasing at a faster rate than ever before.

Accordingly, the most difficult problem for us to deal with will be the provision of primary care services to the less populated, lower income, more geographically isolated communities in North Carolina. Not only is recruitment an issue, but financing care for the poor becomes imperative if patients are going to be able to visit the physician previously recruited to the rural area.

Do you have any recommendations for AHEC or others about addressing these issues?

The challenge to AHEC, the medical schools, the primary care residency programs, and our office is a tough one. I believe attention should be directed at vertically integrating a man-

power education and deployment strategy. For our part we not only need to be working with AHEC and the educational institutions to provide input to the selection of students and to their curriculum, but we need to improve rural delivery systems so that they will provide more attractive practice opportunities.

I would like to see one or more family practice residencies develop strengths in the training of physician leaders in rural health and/or the management of community health centers. I believe that having one or more centers of excellence among the residencies in North Carolina for training this type of physician will enhance that residency program's ability to recruit high caliber physicians from around the country. In this period of difficulty with recruiting primary care physicians, this strategy might enhance the competitiveness of that program.

AHEC's challenge in the 1990s is similar to the 1970s but in some ways is more difficult. Instead of just increasing the number of primary care trainees, a more targeted strategy employing the same numbers will need to be developed. Is it possible that all medical students and residents need not be treated the same? Perhaps only those that show a strong interest in rural medicine should be given rotations in selected rural sites. By 1993 it should be common knowledge among medical students throughout the country that if you want to practice rural medicine you need to do your residency training in North Carolina.

Some reallocation of funds might be necessary. For example, perhaps AHEC faculty could provide 10 days of locum tenens each year as part of their job. Perhaps all rural physicians should be entitled to attend all continuing education at the four schools and at the nine AHECs free of charge. I would favor moving even more of AHEC's resources and priorities toward very practical and focused manpower strategies.

C. Edward McCauley

Mr. McCauley, the hospitals you represent have seen tremendous changes in the 1980s. What are the concerns facing them in the future?

As we enter the decade of the 1990s, it is timely that we pause to consider all of our social institutions in order to evaluate where each is in terms of its basic mission and to determine how each might be modified to serve its constituencies even better in the future. Taken in the broad perspective, among those institutions of relevance to this particular question are the medical profession, our hospitals, and the AHECs.

Several environmental issues are most dominant in their influence on these institutions and on health care in North Carolina. One is the increasing sophistication of patients and payors in their understanding of the broad perspective in which good health is achieved, including a more sophisticated perception of the perceived quality and cost of the service received. Unfortunately, even those providing health services find it impossible to define "quality" in clear, easily understood terms. Likewise, providers have consistently failed to provide ade-

quate evidence to convince payors and patients that the costs of health services are fully justified. That must change.

Another issue related to the access and cost of health care is the broad problem of overpromising and underfunding by government at the state and federal levels. Physicians and institutions are, in effect, subsidizing governmental commitments. Such an environment is fraught with attempts to place the blame elsewhere. At the hospital level there must be improved dialogue and commitment among the trustees, medical and professional staff, executive officers, employees, and the public.

A third future issue is that related to technology. Individual physicians—and institutions as well—are often judged by their ability to acquire and use the latest techniques or equipment. While this obviously improves health care it also leads to severe competition among various providers and to undeniable duplication of facilities and services.

What about manpower issues?

The shortage and maldistribution of health manpower has a significant impact on the availability and price of health care services. North Carolina is blessed with unusual resources to address manpower concerns, including a strong educational system at the university and community college levels, four medical schools with various allied health programs, AHEC, and philanthropic foundations for financial support. Though many efforts are underway to address manpower problems, considerable fragmentation and battles of "turf" remain.

What strategies might you propose?

I believe there are at least four that we might consider. First, efforts must be made to provide education and opportunities for discussion for physicians, trustees, hospital executives, and employees about the overall environment to promote understanding, commitment, and team building. Special attention should be given to the payment system.

Second, efforts must be made to enhance networks among outlying areas with medical schools and more urban areas. Such an approach should facilitate the recruitment and retention of health professionals and their families. A primary initiative has to be to get physician and allied health manpower into underserved areas and their hospitals.

Third, we must design educational offerings which assure that every practitioner has access to knowledge of the latest technology. The focus should be on reasonable sharing and referrals as opposed to more acquisition and competition among providers.

Finally, we must encourage the use of available data to document and research changes in the health care environment. These data must be understood by professionals and the public.

I should note that the AHEC Program, with its affiliations in both the academic and service sectors, is uniquely positioned to serve as a catalyst for carrying out these strategies.

Donald Taylor

Mr. Taylor, you have been involved in health and human services in our state for many years, and have been Director of the Division of MH/MR/SAS for almost a year now. Your agencies and affiliated programs employ almost 2,000 people and serve many thousands yearly. What issues do you see in health manpower development?

In looking at the mental health system as a whole, the most compelling issue in health manpower development for North Carolina is the limited availability of mental health professionals and allied health professionals, particularly those interested in working in the public sector. The problem is compounded by the maldistribution of the limited number of people available; by the need for professional programs to be held in areas other than metropolitan locations; by the need to revise curricula in all professional schools to reflect better the rapid evolution of service needs, and by the difficulties public programs have in being competitive with the private sector in salaries, budgets, and fringe benefit packages.

What do you suggest to address these problems?

Approaches or strategies which I believe are needed include: increasing the numbers of professional training programs, the number of students, and the number of field placements for trainees in the public sector; improving collaboration among educational programs and the service delivery system; and developing more innovative academic programs which can be offered in more remote areas of the state on days and at times that will attract those in the work force as well as the traditional student.

Another more important strategy would be a concerted effort to bring the issue of both present and future manpower shortages and concerns to the attention of all departments of state government, the Governor, the Legislature, the County Boards of Commissioners and others who are concerned with and responsible for the provision of services to the citizens of North Carolina.

The North Carolina AHEC Program has been providing education and training services to the community agencies and institutions in your division since 1985. Do you have proposals specific to AHEC?

Yes. I propose the following challenges: (1) Develop educational programs to facilitate the recruitment of students into the mental health and allied health fields; (2) Expedite the collaboration processes between academic and service delivery organizations; and (3) Assume a greater leadership role in educating all of us on the present and future manpower needs I've mentioned. □

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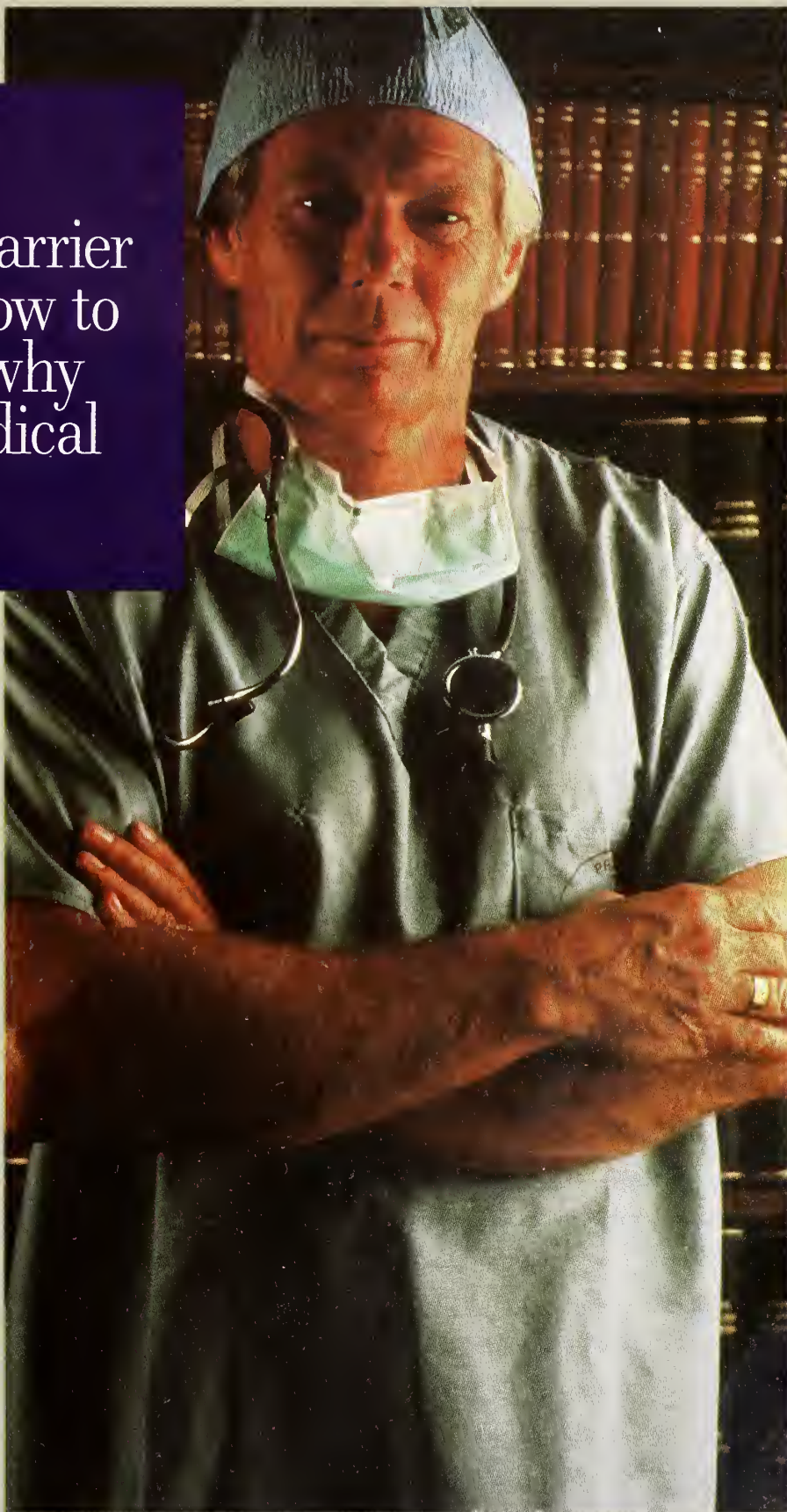
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Community Based Medical Education Through AHEC

AHEC is involved in four components of community based medical education: Medical Student Rotations; Primary Care and Psychiatry Residency Training; Continuing Education; and Specialty Consultation Clinics. This section highlights medical student rotations and residency training. The remaining two components are addressed in a later section on information dissemination.

Medical Student Rotations

AHEC provides organizational support for off-campus rotations of medical students from the four North Carolina medical schools. Students receive instruction in primary care and selected specialties from full-time and part-time AHEC medical faculty and from over 2,500 community physicians who provide their time, knowledge, and guidance to students and residents.

Community rotations from the medical schools vary in focus and duration according to the school and the medical students' levels of training. For example, in their third year, UNC-CH medical students spend approximately 32 percent of their required clinical clerkships in an AHEC region in the areas of pediatrics, psychiatry, surgery, internal medicine, and obstetrics/gynecology. Fourth-year students spend 35 percent of their clinical training time in an AHEC region, including the required family medicine preceptorship and the required acting internship in pediatrics or internal medicine.

Bowman Gray students have extensive community rotations in each year of the curriculum. ECU students have community rotations in several specialties with an emphasis on family medicine. Students at Duke all have a family medicine rotation, a significant part of which is in AHEC settings.

Figure 2 highlights the community training sites for medical students from the four medical schools. AHEC is also involved in the education of students in dentistry, nursing, pharmacy, public health, and allied health, as shown in figure 3.

Primary Care and Psychiatry Residency Training Programs

A primary goal of the North Carolina AHEC Program has been to improve the distribution and retention of primary care physicians in the state. Toward this goal, the nine AHECs participate in the community-based training of medical residents who have chosen to specialize in primary care areas such as family medicine, pediatrics, obstetrics/gynecology and internal medicine. The four academic medical centers also participate in the training of primary care residents including rotations to AHEC settings. Today residency training takes place in each of the nine AHEC regions. These training programs also allow more medical students to remain in the state for their residency.

The articles in this section give a variety of perspectives on medical education in the community from the vantage point of faculty and practitioners located in community settings who both teach and learn in AHEC-supported activities. □

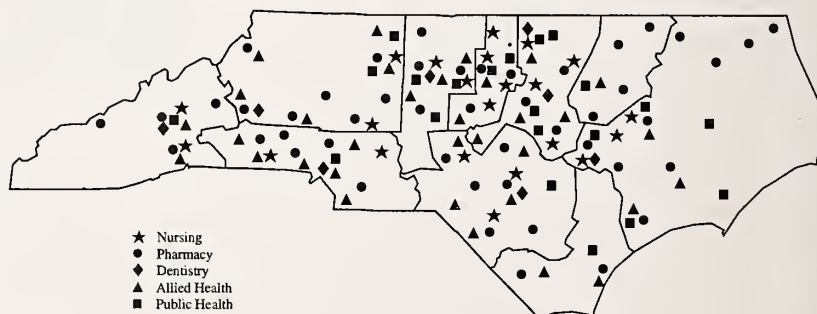
Figure 2.

Locations of AHEC Rotations for Medical Students (1988-89)



Figure 3.

Locations of AHEC Rotations for Health Sciences Students (1988-89)



Current Issues in Community Based Medical Education

W. T. Williams, Jr., M.D.

"The adequate and proper teaching of the methods and responsibilities of clinical medicine requires that institutions should not be detached from the practical problems of medical service in the community."

—Commission on Medical Education, 1932¹

Medical education in the United States began in the community before being assigned a position in the university setting. Now after several decades it is returning to the community, pushed by internal and external forces, in the hope of fulfilling its mission to provide the appropriate curriculum for the physicians who will practice in the 21st century. To be successful, it will be necessary to continue to develop dynamic partnerships among institutions of higher learning, community-based academic medical centers, and local practitioners.

History

In colonial America, physicians were usually clergymen who obtained their medical training in England as they prepared for service in the church. Training of new physicians was by apprenticeship under practitioners and the clergy. As the country grew, medical societies were organized to credential competent physicians. Some of these societies ultimately developed into medical faculties, and were granted charters by state legislatures to conduct medical training. The first medical school, the University of Pennsylvania, was founded in 1765.

The original educational model was heavily influenced by European universities. It included a structured curriculum of scientific courses with a didactic introduction to clinical medicine, but with little hands-on experience. This was reserved for the internship, usually lasting one year, which provided a supervised situation in a hospital to facilitate the transition from the classroom to practice.

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The Present

Today's medical education most often consists of four years of medical school, which includes two years of basic sciences and two clinical years. This is usually followed by three to five years of post graduate (residency) training. These residencies had their origins as physicians specialized. They were sponsored by hospitals that used the programs to provide significant service, including indigent care. In the community hospital setting, the faculty has traditionally been unpaid volunteers from private practice. It has been only recently that formal curricula have been developed and full-time faculty recruited. Communications between the medical schools and residency training programs have been mostly informal, outside of the university setting. Multiple factors, both internal and external, are causing major changes in these models.

External Factors

Anything that affects the practice of medicine eventually has a profound influence on medical education. The two factors that are providing the most significant impact at present are the explosion of new knowledge and the complexity of medical economics.

It is no secret that medical knowledge and technology are advancing on an exponential track. This has a dramatic enough effect on the practitioner struggling to keep up to date while working 80 or more hours a week, but the task of planning a curriculum to give a student an adequate understanding of so many fields is confounding. The core curriculum must be equally applicable to the physician who plans to practice in a farming community, or one who will be the transplantation specialist of a cardiology group. This requires a smooth transition between the undergraduate and graduate medical curricula, based on prospective cooperation among all of the institutions involved. A further demand on the curriculum is that of specialized instruction to the point of proficiency in the technology of informatics, which will be essential for the medical professional from now on.

The discussion of medical economics begins with the 400-plus billion dollars spent annually for health care in America. There is ample information to suggest that third party payers want these costs to come under control. They have instituted programs of pre-admission and concurrent review. Health Maintenance Organizations and other forms of negotiated prospective payment programs have sprung up with varying levels of success. The federal government has responded with DRG payments to hospitals and is currently looking at similar options for payments to physicians.

The direct and indirect effects of these changes on medical education are substantial. DRGs have also decreased the length of hospital stay, which is causing possibly the most profound effect yet in the history of medical education. A recent study at a university-affiliated hospital in New Jersey concluded that admissions were not long enough to include time for the medical student to be involved and left only perfunctory time for the housestaff.² A related study found decreasing educational value of admissions from 1971 compared to 1986. The two most frequently cited reasons were increased diagnostic investigations and decision making in the outpatient setting, and increased admissions for specific procedures only as opposed to evaluation and treatment.³ For the first time in 150 years, the hospital inpatient setting has become inadequate as the sole, or even primary, site for the clinical phases of medical education.

As prospective payment methods and discount schemes come into existence, the income of the private physician depends more than ever on volume and efficiency. That they might be asked to have students or junior-level residents in tow during regular office hours represents a further threat to this need to produce at high volume.

Internal Factors

Besides the indirect effects that the medical schools feel through hospitals and private physicians, there are internal forces at work. Again, one is economic. The federal government is threatening a significant reduction in research funds as it strives to bring its spending under control. States have had to pick up some of the slack, leaving many university-related medical schools to suffer as these funds are spread even thinner. One of the results has been rapidly increasing tuitions which are leaving medical school graduates at record levels of debt. This may be one of the reasons so many graduates opt for highly technical and higher paying specialties.

Other factors are at work in the universities. More than ever full-time faculty are under the gun to publish in order to be competitive for grant funding, which is also necessary to offset the shortfall in medical school budgets due to indigent care. This has potentially adverse effects on the clinical teaching abilities of the faculty, and often results in the criticism of the research-oriented faculty as poor role models for clinical practice. These factors, coupled with the decreased length of stay at the university hospitals, are causing some schools to consider

developing two types of faculty: one more research oriented and one more clinically oriented. These factors have significant implications for the system of faculty promotion and tenure and for the need for increased rotations of students to the community.

Another internal force affecting the university and community teaching hospitals alike is the change in emphasis of the residency accrediting body, the ACGME, which has made it clear that it holds institutions responsible for making residency programs legitimate educational experiences, rather than service experiences. The Residency Review Committees are stressing the concepts of continuity of care, adequate supervision, graded responsibility, realistic duty hours, and proper evaluation of residents by their faculty and vice versa. Teaching hospitals are realizing that they will have to have additional, non-education related physicians and ancillary personnel to meet their service needs. In this setting of decreased educational funding and increased education and service expense, Boards of Trustees of community teaching hospitals will be forced regularly to assess the feasibility of their resolve to be involved with medical education.

Partnership for the Future

The goals and the challenges seem clear: having an educational system that includes experiences necessary for basic science and clinical education; teaching by competent professors who represent legitimate role models as clinicians, teachers and researchers; attaining more demanding educational and accreditation standards, and identifying fiscal resources to support the programs.

I would propose that most of the elements for this framework are currently in place within North Carolina. The cornerstone is the partnership between the universities and the community-based academic medical centers. In North Carolina, this relationship is coordinated by the North Carolina AHEC Program's sophisticated educational network. Proposed solutions to some of the present and future issues affecting medical education will be discussed in the context of this model.

The Changing Community-Based Teaching Hospital

As noted, the voluntary faculty are feeling pressured to stay in their offices and produce income at the same time that the ACGME is requiring increased teaching, supervision, and research. This means that there will be an even greater need for full-time faculty in the community. Also, private community teachers will need to provide regular teaching time, especially to subspecialty clinics. The community hospital will need to provide the facilities and other resources necessary to support its faculty's research activities. All of this should have the effect of further establishing the hospital and its private practice community as regional referral resources.

Teaching in the Ambulatory Setting

As the inpatient experience becomes insufficient to provide the case mix for medical education, the community-based academic medical center can also serve as a focal point for organizing and managing a community-based ambulatory experience. Some of this can be provided in the hospital's outpatient facilities with supervision by the faculty. However, an integral portion of the experience will need to be located in other outpatient facilities which might include some of the following: health departments, neighborhood health clinics, mental health centers, and private offices. The North Carolina AHEC system has well-established relationships with many of the public sites so it should be relatively easy to incorporate them into the new system of medical education.

The real challenge, however, is the incorporation of medical students and residents into the private practice outpatient setting. The most important advantage to this setting is that it places the student with one of the most important role models, the private practitioner. To make it succeed, this educational partnership must address several issues. It must provide a mechanism for selecting qualified practitioners willing to have students and residents in their offices, seeing their patients with them. It must provide the means for showing these practitioners the techniques needed for teaching and evaluating the student, and to support them in any other way as educators. And finally, it must also address the issue of slowing down the busy practitioner, thereby costing him or her money.

All of these, with the exception of the last, can be easily accomplished at the community level based on educational resources already available within the AHEC relationship.

The last of these issues is a fiscal matter. The practitioner who teaches more than the occasional student or resident in the office must be paid to offset lost revenues. It is totally unreasonable to expect a private practitioner to support the training of future physicians in the office setting any more than it is in the medical school setting. What then are the sources of these funds? Eisenberg favors enhancing part B physician payments to those involved in ambulatory education and suggests that other governmental payments (e.g. Medicaid) have similar passthroughs.⁴ He also describes one HMO which has set aside one percent of its gross revenue for education and community service. He also advocates federal grants for these purposes. I would add there is a role for state and local funding because of the relative economy of caring for indigent patients as outpatients before they become inpatients. Bently, Knapp, and Petersdorff suggest some funding from core funds of the medical school, continued Medicare direct education funding of outpatient activities, contributions from medical center practice plan revenues, and public grants.⁵ Convincing these third parties of the worth of this investment will be the challenge.

Summary: A New Look and a Facilitator

The traditional university-based educational model is not likely to provide all of the clinical experience necessary for medical students and residents who will be our physicians in the 21st century. Similarly, community-based academic medical centers that may be strong in providing a rich clinical setting, supported by full-time faculty, are not in a position to provide a basic science curriculum, or a basic science research component. The community-based teaching center may have a better selection of clinical role models, especially in primary and secondary care, but is not likely to have the numbers to support training in some of the highly sub-specialized fields.

The model for the future is, therefore, based on a complementary partnership of the university medical center and the community teaching hospital, with the incorporation of the local medical community into the community-based program. The North Carolina AHEC Program provides a mechanism by which this can be accomplished. Indeed, many parts are already in place and functioning. AHEC is in the ideal position to coordinate activities between the institutions in the partnership and among the potential sources of funding. The three articles that follow in this section make clear the role of the AHEC network already in place. □

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Medical Education, Teaching and Research in the Community Setting: The Full-Time AHEC Faculty

C. Stewart Rogers, M.D., and Peter Gal, Pharm.D.

Most medical practitioners are trained in academic medical centers; most of their future patients live in non-academic communities and will receive care in non-academic settings. Let us begin with a tribute to the inherent strengths of this dichotomy. Education is a specialized, ever changing activity. Academic medical centers have evolved to reflect the cumulative wisdom of thousands of medical educators, many of whom have large patient care experiences, and all of whom are knowledgeable about teaching. Furthermore, while medical education is among the most service-based of all forms of learning, it is still necessary to balance patient care experience with formal scholastic activities and undistracted time to reflect and read.

Nonetheless, there are certain limitations of academic hospitals as training sites for primary care physicians. The patients are highly selected by the process of tertiary referral and overrepresent unusual or refractory diseases. In this environment, trainees learn diagnostic decision-making based on disease prevalences that are much different from those in the physician's office or in the community hospital. The complex care of such patients is often financed in ways that neglect cost constraints that must be considered in community practice. Faculty must apportion their time and energy to serve the high priorities placed on research and administrative duties, and seldom have large continuity practices in primary care. Because of the complexity of referrals to academic centers and the specialized interests of the faculty, most patients are seen in subspecialty wards and clinics where holism yields to specialty expertise.

The AHEC Program has provided a learning opportunity for students and residents that complements their education at

the medical school. Training in AHEC-affiliated community hospitals provides the opportunity to create an academic format in the community setting. The basic elements of the curriculum are borrowed from traditional programs: lectures, seminars, journal clubs, teams of learners with graded responsibility, attending rounds for the ward teams, and precepting in the clinic. The special features are the unselected patient population, the opportunity to study and work in hospitals that are community institutions, the collegial association with full-time practitioners whether generalists or specialists, and the congenial atmosphere of small programs. In North Carolina, the only educational opportunities allowing for large, continuity experiences in primary care out-patient settings are in the community hospital programs. With the increasing emphasis on the out-patient setting for economic and educational reasons, these training resources assume an even greater value.

The educational advantages of community training extend to research as well. The critical areas of health promotion, chronic disease management, cost-effectiveness of services, patient compliance, health care delivery, patient satisfaction, home health care, and the interface of medical practice and indigent care are often best studied in settings that are representative of where most of the new knowledge will be applied. AHEC medical faculty have been active in local and multi-center studies in many of these areas.

AHEC medical teaching services vary from region to region to meet specific needs, but the basic structure is a small faculty of full-time clinician-teachers with extensive participation by private "volunteer faculty," especially in the subspecialty fields. Full-time AHEC faculty all have academic appointments at the appropriate affiliated school of medicine. All four medical schools in the state are actively involved with AHEC. Usually the teaching services are responsible for only a fraction of the hospital census, and primary care residents work alongside private physicians with abundant opportunity to observe practice styles. A relative lack of academic experi-

From the Greensboro AHEC and the Moses H. Cone Memorial Hospital. Dr. Rogers is Associate Professor of Medicine, UNC-CH School of Medicine, and Dr. Gal is Clinical Professor of Pharmacy, UNC-CH School of Pharmacy.

ence in the volunteer faculty is balanced by their primary commitment to patient care, the empathy that grows with prolonged doctor-patient relationships, and their "real world" knowledge of the health care economy as it relates to their own livelihoods and to obtaining services for their patients.

In turn, the private practice and hospital communities benefit from the practical and academic services of teaching programs. In most AHEC hospitals the teaching programs provide a large share of indigent health care, run the resuscitation teams, coordinate the lecture schedules, and promote the critical inquiry that is basic to modern clinical work. The presence of faculty members with special interests and flexible schedules provide the host communities with physician input to programs ranging from sports medicine to hospice, from public education to infection control, and from private medical practice to health care for the homeless. Such activities enhance community respect for both the affiliated universities and the medical profession. They open new educational perspectives for students and residents, and repay the society that supports our work. Perhaps most important to practitioners is the opportunity to teach, which in turn provides the stimulus to keep learning, fundamental endeavors of all learned professions and the obligation of the physician since the time of Hippocrates. The enthusiastic support of the AHEC medical training programs from the majority of the private physicians in each host community is a tribute to the continuing strength of this profession.

An important aspect of medical student education in the AHEC sites is the contribution of full-time AHEC clinical pharmacy faculty and the pharmacy students they supervise. AHEC pharmacy faculty all derive their academic appointments from the UNC School of Pharmacy in Chapel Hill. The pharmacy students are often assigned to in-patient or out-patient medical services at the AHECs and exchange pharmacologic knowledge and medical information with medical students and residents. AHEC pharmacy faculty are generally integrated into one or more medical teaching services to enhance medical education. Contributions to medical education are made by AHEC pharmacists through in-patient medical rounds, out-patient medical clinics, medical conferences, clinical consultation, and medical research, as well as through their role as preceptors for clinical pharmacology rotations.

The types of knowledge provided by AHEC pharmacists include: principles of therapeutic drug monitoring and pharmacokinetics; comparison of drugs in the same pharmacologic class used for the same therapeutic purposes; assessment and prevention of adverse drug reactions; identifying and managing drug interactions; approaches to avoiding polypharmacy; and promoting patient compliance with treatments. Much of this knowledge is best provided in small groups such as discussions during medical rounds. Therefore, most AHEC pharmacists make teaching rounds with the medical faculty and educate through individual patient situations. This setting and team style of teaching promote problem solving and practical application of pharmacologic knowledge.

Research is an important activity of the full-time AHEC clinical pharmacists, and has resulted in many contributions to professional journals. Pharmacy faculty in the AHEC Program participate in a wide range of research projects addressing in-patient, out-patient, and nursing home concerns. Other research examines issues of cost effectiveness of drug therapies and laboratory tests, issues of reliability of laboratory tests, drug interactions, management of drug overdoses, adverse drug reaction reports, surveys of current practice, and innovative drug dosing approaches. Representative examples of studies are:

- * Factors influencing aerosol drug delivery through ventilators
- * Pharmacokinetic and pharmacodynamic considerations with heparin
- * Use of antiepileptic drugs in elderly nursing home patients
- * Evaluation of the FDA dosing guidelines for theophylline in neonates
- * Factors influencing hospital charges for antibiotics

These are only a few of the studies in which AHEC pharmacy faculty have participated, enhancing their effectiveness as teachers of both medical and pharmacy students. During the past four years, AHEC clinical pharmacy faculty have participated in over 30 studies. The common theme for these studies is their immediate clinical applicability to physicians and pharmacists with whom they work. In the process, these faculty have promoted greater utilization by private physicians of pharmacists with clinical expertise to help optimize drug therapy. This process and its benefits are visible in the teaching programs at AHEC-affiliated hospitals.

The AHEC Program promotes and nurtures involvement of the practicing physician and other health care professionals in the ongoing education of medical students and residents. In the process, education of private physicians and closer professional cooperation among health professions is encouraged. The practical, cost-conscious approach to medical care and the intelligent utilization of all health care resources within a community is a unique and important aspect of medical education. □

Experiences with Community Based Medical Education:

A Preceptor's View

John Chambliss, M.D.

In 1967, Dr. Reece Berryhill, then Dean of the School of Medicine at the University of North Carolina at Chapel Hill (UNC-CH), and Mr. Glenn Wilson, then AHEC Program Director, began to develop affiliations with community hospitals for the purpose of establishing community-based teaching facilities for UNC-CH medical students. In 1968, the bond issue for the building of the Nash General Hospital in Rocky Mount was passed and action begun to build the new hospital. In 1969, the General Assembly of North Carolina provided funds to the UNC-CH School of Medicine for the development of graduate and undergraduate medical education programs in affiliated hospitals. At about the same time, the medical staff of Nash General was being organized under the leadership of its newly elected president, Dr. K.D. Weeks. The staff, in association with the hospital administration, had determined the goals and type of hospital desired. We were all committed to the belief that the best quality of medical care was, and still is, rendered in a hospital with a strong teaching orientation.

To this end, we had many meetings with Dr. Berryhill and Mr. Wilson, and were made aware that many other hospitals in our area (known as "Area L") were equally interested and enthusiastic about an academic affiliation. Specifically, Edgecombe General Hospital in Tarboro (now Heritage Hospital), Wilson Memorial Hospital in Wilson, and Halifax Memorial Hospital in Roanoke Rapids, were all seeking affiliations with the UNC-CH School of Medicine. In the many meetings that ensued with the medical school representatives, it became quite obvious that all four hospitals had many mutual problems, goals, and desires which could be solved by a cooperative approach. It was also obvious that any one of these hospitals was too small to support a full time teaching program.

On May 17, 1971, Dr. Isaac M. Taylor, then Dean of the School of Medicine at UNC-CH, made the dedicatory address

for the opening of the new Nash General Hospital in Rocky Mount. Given the events over the preceding few years, it was very appropriate for an academician to give the dedication address.

As a result of these early efforts, the UNC-CH School of Medicine applied for and was awarded a five-year \$8.5 million federal contract on October 1, 1972, to develop AHECs in Charlotte, Wilmington, and Area L. The end result was to unite all four hospitals into what was subsequently known as the Area L AHEC. This was the first time that four small community hospitals had united to form an AHEC. The goals of the four hospitals were identical to those of the state AHEC Program, located in Chapel Hill. The purpose, therefore, of the Area L AHEC was, and still is, to provide educational opportunities to enhance the health care delivery system and to help improve the quality, quantity, and distribution of health care providers. This purpose has been accomplished through cooperation with health care providers, educational institutions, and related organizations in Edgecombe, Halifax, Nash, Northampton, and Wilson counties.

As each of the AHECs in North Carolina grew, their principal goal was to develop residency training programs in family practice and other primary care specialties. Under the leadership of Dr. Lawrence Cutchin, the first medical director of the Area L AHEC, we looked into the possibility of developing a residency training program in Area L. We knew that no hospital in our area was large enough to handle such a program alone, and considered developing a program where each of the various primary care specialties would be taught in a different hospital.

It soon became obvious that we should direct our energies toward our strengths rather than try to duplicate what larger hospitals were doing. We felt that our strength would be in developing a preceptor-student relationship for fourth-year medical students and residents to rotate through our community hospitals. We had many goals and purposes in this.

From the Boice-Willis Clinic, Rocky Mount. Dr. Chambliss is Clinical Professor of Medicine, UNC-CH School of Medicine.

First, we wanted to train the students, interns, and residents in community practice settings to increase the likelihood of their returning to this area to practice. We wanted to broaden the clinical primary care experience of university students in community hospitals, family practice centers, and rural health centers as well as physicians' offices throughout the state. We also felt that giving the students a chance for a one-on-one relationship with a preceptor for an extended period of time would be a very valuable experience for both the student and the practitioner. Because the many ongoing educational activities directed toward the students would also be accessible to the medical staff, it would greatly improve the quality of medical care in our area.

Since the beginning of the Area L AHEC, over 650 medical students have experienced a preceptorship in the region. Fifty percent of these students have been in family practice and the other half as acting interns in internal medicine. We have also precepted students in pediatrics and surgery, and have had residents in obstetrics/gynecology. Most of our students are from UNC-CH, but we have also assisted students from the East Carolina University School of Medicine, the Duke University Medical Center, and the Bowman Gray School of Medicine. We have used over 50 different preceptors in the area.

A key factor in our program is the preceptors themselves. We have found the secret is to have preceptors who enjoy teaching, learning, and improving their own knowledge, and who enjoy working with students. Of course, each preceptor must meet the academic standards of the medical school department which is to grant the faculty appointment. The students in acting internships in internal medicine work primarily in the hospital. Those in family practice work primarily in the preceptor's office. The students, in both instances, do exactly as their preceptor does. If the physician is attending in the emergency room, the student does the same. If he or she is treating patients in the office or on the wards, the student does the same. If the preceptor gets up in the middle of the night for emergencies, the student also gets up. The students go to county medical society meetings, civic meetings, and indeed, do everything that the preceptor does. This gives the student a realistic look at what the doctor does all day and all night and what his or her various obligations and involvements are.

This is the first, and probably only experience a medical student has of a one-on-one teaching experience over any significant period of time. Students respond extremely well to this, and we find them highly motivated and stimulated. They do considerable reading and studying about their patients and report back to the preceptors. They are allowed to carry substantial responsibility in patient care under the direct supervision of their preceptor. With guidance, they are allowed to practice various procedures in which they may not have fully developed their skills. In addition, we have regular teaching experiences conducted by visiting faculty from Chapel Hill on a weekly basis. These teaching activities are also attended by local medical staff.

It is fascinating to watch these students as they develop real doctor-patient relationships. The students also get a closer look at a cross-section of the patient population in a community hospital and the chance to see patients that an average practitioner sees every day as opposed to the highly selected, though very necessary, patient population seen in a university hospital.

As an experience of limited duration, and in no way intended to replace the experience of the teaching hospital, I feel that this community based rotation program has been a very beneficial experience both to the preceptor and to the student. In reports of their experiences, students invariably rank their experience here extremely high. Nearly all of them state they would do it again and recommend it to their fellow students. Several of them have returned for a second rotation on an elective basis. An amazing number have stayed in contact with us by letters for years after their experience here and several have come to our area to practice.

In addition, as an experience unique to the Area L AHEC, freshman medical students from UNC-CH are given the opportunity to visit the region throughout the year for a half-day orientation to community medical practice. Students are transported to the region via AHEC's Medical Air Operations to visit the communities of Tarboro, Wilson, Rocky Mount, or Roanoke Rapids. The air service has been invaluable in getting students to the area as well as for transporting speakers for our medical continuing education programs. While in these communities, the students are given the opportunity to speak with a local physician concerning his or her medical practice and also have the opportunity to visit health care institutions, i.e., hospitals, health departments, nursing homes, or other extended care facilities. The purpose of these visits is to acquaint students with levels of care in the smaller community and to provide exposure to medical practice at the "grassroots" level.

Another experience, which is valuable to medical students during their training, involves the teaching of physical diagnosis in an off-campus setting. Students from UNC-CH have the option of visiting the Area L AHEC region during their second year of medical school for additional training in physical diagnosis. Initially begun at Edgecombe General Hospital in Tarboro, four to eight students are now transported via Medical Air Operations to Nash General Hospital in Rocky Mount for this experience. These students take patient histories on hospital in-patients, search for physical signs and symptoms, and then write up reports to be critiqued by the preceptors. In this manner, the students gain valuable "hands-on" experiences in the various aspects of physical diagnosis. This course has proven to be extremely popular with the students and we have plans to continue expanding this program to other hospitals in Area L.

I am convinced that the AHEC teaching experiences in community hospitals offer major benefits, both to the medical student and to the medical staffs. There is no question in my mind that the AHEC affiliation improves the quality of medical care in community hospitals and is a real plus as we recruit physicians to our area. □

Reflections of a Former Student, AHEC Resident, and Now Rural Practitioner

Susan Tripp Snider, M.D.

Community medical practices and local hospitals are the settings through which most people enter the health care delivery system. The vast majority are treated there, and referral to tertiary medical facilities is necessary for only a small percentage of all patients. For physicians-in-training who anticipate a primary care practice, training in the "real world" of community-based medicine provides essential experience. This idea seems self-evident now. The AHEC program has done its work well, and medical educators are more willing to recognize the value of community experience for medical students for some component of their education.

When I applied to medical school in 1974, I knew I was interested in family medicine. My grandfather and uncle were family physicians in a small town (Falmouth, Massachusetts), and were role models for my conviction that one could practice good medicine and provide important services to a community. Family practice made sense to me, and it fit the range of my interests.

In my medical school interviews, however, responses to my questions about training for primary care were not always positive. I asked in one institution about educational opportunities outside the university medical center, and was told, "Our belief is that you should learn difficult medicine first, and after that easy medicine is easy." That was not a satisfactory answer to me then, and my years of practice have not changed that opinion.

Fortunately, the UNC-CH School of Medicine has a positive attitude about community based education. As a medical student, I did parts of my medicine, pediatrics, and obstetrics rotations through the Wake AHEC at the Wake Medical Center

in Raleigh. I was very grateful for the way my experiences in Raleigh complemented those in Chapel Hill at the North Carolina Memorial Hospital (NCMH). There were many more normal deliveries at Wake, and the obstetrics clinics were busier, which provided much more practice than I could have had at NCMH. On the Medicine service, I saw people at the Wake AHEC with pneumococcal pneumonia, gastro-intestinal bleeding, and gonococcal arthritis. Patients at NCMH were much more likely to have fascinating, but very unusual disorders. One of my patients was the first person documented to have both autoimmune hemolytic anemia and paroxysmal nocturnal hemoglobinuria. Pediatrics had a similar distribution: leukemia and cryptococcal meningitis at the university; bronchiolitis, diarrhea with dehydration, and *Hemophilus influenza* type b meningitis in the community hospital.

But that wasn't all. I learned that, even though physicians in the university were sometimes scornful of the "LMD" (Local Medical Doctor), almost all of their patients had such a doctor, to whose care they would be returning. The primary physicians who knew the patients and their families had been the first to confront their baffling diseases, and had been involved in the decision to send them to the medical center. There are unusual cases in the communities, not in the numbers that are seen in the university, but almost every doctor sees a few during a career. It seemed to me that there would be enough "interesting stuff" to keep me on my toes, but that the real source of interest would be the people themselves, rather than their illnesses.

I discovered something else in the community hospital teaching service. The atmosphere was different, and I liked it. The hospital itself seemed to function more efficiently, and attendings, residents and students all seemed more relaxed. There seemed to be less of the tension and need to impress others which is so common in a university center. It was clear to me that I would prefer to do my residency in a community-based program, and chose the Family Practice residency at the Mountain AHEC in Asheville.

From the Blue Ridge Family Practice, Spruce Pine. Dr. Snider is Clinical Assistant Professor of Family Medicine, UNC-CH School of Medicine.

At the same time, I wanted the educational advantages of a university-affiliated program, because of the access to a wide range of resources. I knew that North Carolina's AHEC Program was probably the best in the country, and I did not even look outside the state for potential residencies. The AHEC system made possible a program which to me incorporated the best of both worlds: the atmosphere of a community hospital and the educational backup of a university medical center.

Once in Asheville for my family practice residency, I discovered that AHEC's reach extended well beyond the city. I met physicians from many small communities at lectures and conferences. Working with specialty services like the Special Care Nursery at the Memorial Mission Hospital sometimes put me on the receiving end of referrals from local doctors, and helped me understand how valuable it is for physicians to have good relationships with, and good feedback from, the specialists to whom they refer.

I knew first-hand the kind of support that was available from the facilities of an academic referral center because I had been there. Now as a resident I was confronted with talking to a physician who was sending a sick child, with riding in an ambulance over mountain roads at night to pick up a newborn with respiratory distress, or with helping to care for a patient whose small community hospital could not deal with the complexity of his diagnostic and therapeutic needs. I saw how the system worked from these perspectives, with support from the medical center enhancing the quality of care available in smaller towns and rural areas.

After completing my residency, I moved to Yancey County to enter a family practice. When I moved to Yancey County, it did not seem at all as if I were in some remote area. I was well within the catchment area for the Mountain AHEC, and it was clear to me whom to call and how to get help if needed. Educational as well as referral resources continued to be easily available. The AHEC faculty and many of the specialists were willing to come to our rural hospital or county medical society meetings to give lectures on topics in their fields. I continue to teach medical students and have a clinical faculty appointment in family medicine at the UNC School of Medicine.

Physicians are always inundated with announcements of medical meetings and conferences. We receive invitations to programs all over the world, but it is not often feasible to get away from a practice to a national or international meeting. However, AHEC conferences provide excellent speakers and opportunities for discussion with other health care professionals in the region, with only a modest investment of time and money. This can be of major importance to physicians in rural areas, whose travel time to the nearest university may be many hours. These opportunities help keep me and my colleagues up to date with the latest research findings from the academic centers.

AHEC activities are as important to nurses, physical therapists, medical technologists, and other health care providers in rural areas as they are to physicians. These workers may be relatively isolated from professional organizations or even

from other individuals in their fields, with fewer opportunities for continuing education than doctors have. AHEC programs play a unique role in providing both education and professional contacts for all nursing and allied health personnel in our community.

Problems with availability of health care in rural areas are far from being solved. The lack of obstetrical services, for example, is of critical proportions in some areas. Numerous rural and small-town practices in this region have been unsuccessful in recruiting new primary care physicians, and as older physicians retire the need for doctors to replace them will grow. It can be even more difficult for small communities to recruit specialists, despite the documented need for services and the projection of an adequate income.

In my experience as a student and as a community preceptor, I find that medical students are frequently attracted to residency programs at AHEC hospitals where they have studied. In addition, graduating residents often choose to practice within the referral area of their training program. The steps from student to resident to community physician are simple and straightforward for those who are attracted to the lifestyle available in rural areas and small towns.

It must be recognized that physicians will not make as much money in small-town practice as can be earned in large cities. Those of us who choose to live in rural areas, however, decide that a more relaxed lifestyle, beautiful surroundings, or a safer place to raise children more than compensate for a lower than average income on a national scale. This can be a deterrent for young physicians entering practice with large educational debts. I believe that there is a continuing need for assistance in repayment of such loans for physicians who practice in underserved areas.

It seems, then, that the need exists to give more medical students even more exposure to the kinds of experiences available through AHEC rotations and community preceptorships. If experience is the best teacher, students will discover for themselves the rewarding aspects of living and working in these areas. □

NORTH CAROLINA MEDICAL SOCIETY

Health Watch

VOLUME 50 / NUMBER 12 / DECEMBER 1989

Did Columbus Discover More Than America?

Leo E. Waivers, MD

Throughout the tapestry of recorded human history is woven the thread of syphilis. One can cross continents, fight wars, observe the fall of royalty and follow revolutions in the footsteps of this disease. The history of syphilis is one of the richest in medicine.

Syphilis is an infectious disease that affects almost every bodily organ. It appears in several stages, sometimes lying dormant for years, only to erupt and produce madness and blindness. It can be passed on from mother to child (congenital syphilis) or may cause children to be stillborn or to die shortly after birth. As Dr. Osler once stated, "Know syphilis in all its manifestations and relations, and all other things clinical will be added unto you."

What's in a Name?

We begin our story with the name of this disease. "The great imitator," "the French disease," "the great pox," "the red plague" — all of these and more are the names by which once

syphilis was called. It first began as a litany of insults: "...the Neopolitans, and the rest of the Italians called it the French disease, Mal Francese ... while the French, on the contrary, called it the Neopolitan or Italian disease, Mal de Naples ... the Germans too called it ... *Franatzozischen Pocken* (French Pox) ... it was called the Flemish and Dutch *Spaanse Pocken* by the Portuguese, the Castilian Disease by the East-Indians and Japanese, the Disease of the Portuguese by the Persians, the Disease of the Turks by the Polanders, ... and last of all, by the Russians, the Disease of the Polanders"

The present-day name of syphilis was taken from a poem written by an Italian physician, Girolamo Frascastoro. Frascastoro was educated at the University of Padua and was a fellow student of Nicholas Copernicus. They shared common interests in astronomy and medicine. After a political realignment forced the University to close its doors, Frascastoro fled to his estate at Lake Garda. From there, he practiced medicine and became the official physician for the council of Trent. In 1530, he published a poem entitled "Syphilis sive Morbus Gallicus" (Syphilis or the French Disease). It is actually more than a poem; it consists of three volumes of 1300 Latin hexameters interlacing mythology and history.

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The Shepherd's Tale

In the poem, Syphilis is a shepherd in the service of King Alcithous of Haiti. When he loses his sheep due to a drought, Syphilis blames the Sun-god and transfers his religious allegiance from the god to King Alcithous. He convinces the natives of the island to offer sacrifices to the King rather than to the Sun-god. The Sun-god becomes enraged and exacts his revenge by releasing a new pestilence upon the island. The blasphemous shepherd has thus been immortalized by giving his name to the dread disease of which he was the very first victim.

Columbus the Sailor

"Syphilis sive Morbus Gallicus" was a very popular poem in the 15th century because it followed an epidemic spread of the pox throughout Europe shortly after the return of Christopher Columbus. One of the central questions in the history of syphilis is the origin of this epidemic. Was syphilis an endemic disease in the Old World which suddenly became virulent or did Christopher Columbus discover more than just the New World? There are several diseases described in Egyptian, biblical and Greco-Roman writings which could have been syphilis, but we do not find the classical symptoms and signs described until after 1492.

As a boy growing up in Seville, Bartolome de Las Casas had seen the return of Columbus and his crew. He was later to spend most of his adult life in the New World, becoming the first priest ordained there, and travelling as a missionary among the Indians. His memoirs were published after his death as the "Historia de las Indias." In it he states, "Two things there were and are in this island that were very grievous for the Spaniards in the beginning: one is the disease of the bubas that in Italy is called the French malady: this, let it be known in truth, was taken from this island, either when the first Indians left at the time when the Admiral D. Cristobal Colon returned with the news of the discovery of these Indies, which I soon saw myself afterward in Seville, and these were in a position to communicate it to Spain by infecting the air or in other ways; or when some Spaniards having already contracted the disease went on the first return voyage to Castile."

A more pointed accusation comes from the Spanish surgeon Ruiz Diaz de Isla in his "Tractado contra el mal serpentino" (Treatise against the serpentine disease) published in 1539: "It has pleased divine justice to give and send down upon us unknown afflictions, never seen nor recognized nor found in medical books such as this serpentine disease. And this appeared and was seen in Spain in the year of our lord one thousand four hundred and ninety three in the city of Barcelona: which city was infected and consequently all Europe and the universe in all known and communicable parts: which disease had its birth once and for all on the island

that today is named Espanola (Haiti)." He even specifically names one of the three Pinzon brothers, who were in command of the Nina and the Pinta, as a victim of this disease: "As it is of its very nature contagious, they got it easily: and presently it was seen in the fleet itself in a pilot of Palos who was called Pinzon." This last sentence was in his original manuscript, but was deleted when it was published — most likely at the advice of a lawyer.

At an early commemoration of the 500th anniversary of Columbus's landing, a group of anthropologists meeting at the Smithsonian Museum of Natural History agreed that the available physical evidence favored the truth of these accounts. Dr. George J. Armelagos of the University of Massachusetts said that he and others had searched in vain for skeletons showing evidence of syphilis in Europe before 1492. "Then you look from 1492 onward, and you start finding all these cases."

Charles VIII

If Columbus did indeed return to Spain with more than just gold and slaves on his ships, how did it spread to the rest of Europe? Charles VIII, King of France in 1494, embarked upon an ambitious invasion of Italy where he intended to claim the Kingdom of Naples. Most of Italy in his path welcomed the conquering King — through Turin to Asti, to Florence to Naples. The few towns that resisted him were massacred by his troops and mercenaries. At the siege of Naples, "[the city] was given over to feasting and pleasure; Naples became a vast brothel. In time, a terrible disease, new to the doctors, broke out among the French troops and soon spread everywhere."

Whether the King had brought the infection to Naples or took it away with him is not clear, but the return of his army began the spread of the pox into the rest of Europe. Thierry de Hery made "a pilgrimage to the king's grave at St. Denis, he went down on his knees and said to a priest who was standing by, 'Charles VIII is a good enough saint for me; he put thousands of francs in my pocket when he brought the pox into France.'"

Onward it spread, from France to Germany and Switzerland in 1495, to England in 1498, to India in 1498 and in 1505 to China. Finally, in 1646 it was noted that "a loathesome disease" (*lues venera*) appeared among the inhabitants of one of the Connecticut colonies. The disease had come full circle, returning to the New World in less than 200 years.

The Rich and Famous

For the next few centuries, we can trace the progress of syphilis through the lives of the famous and infamous. It is difficult to make a definite diagnosis through historical accounts, but from descriptions of physical appearances and

symptoms one can at least guess at those who suffered from syphilis.

Royalty, although always fair game for lascivious gossip, seems to have had more than its expected share of cases. The death of the infamous Charles VIII was attributed to an accidental knock on the head he received at a tennis match, but his physical appearance and the early deaths of his four children caused him to be suspected of being infected.

The lack of an heir for Charles led to installment of Francis I as the subsequent King of France. In a book written in 1936, U.S. Surgeon General Thomas Parran states that the reign of Francis I "presents a vivid picture of what happens to a nation when its absolute ruler is governed by the impulses of irritable inconsistency and the delusions of grandeur which accompany one type of late syphilis."

Henry VIII of England has often been cited as a possible victim. He also had children who were stillborn or showed signs of congenital syphilis. It is possible that creation of the Church of England, thus allowing him to divorce his wife, was directly related to his search for a noninfected spouse. It is claimed that he had Cardinal Wolsey beheaded because he believed that the Cardinal infected him by whispering in the King's ear.

In more recent times, John Keats, Franz Schubert, Heinrich Heine, Friedrich Nietzsche and many others were either known or believed to have been infected.

Finding Cause and Cure

In a pointed example of dangers of medical experimentation, Dr. John Hunter, an English physician of the 18th century, inoculated his urethra with exudates from a patient with gonorrhea and subsequently developed syphilis. This had the unfortunate consequence of promoting the idea that gonorrhea and syphilis were the same disease (a point of presumable minor significance to Dr. Hunter after some deliberation).

The search for the cause of syphilis and its treatment was directly responsible for the progress in medical knowledge in the last two to three centuries. Three of the most significant advances came from Germany in the early part of the 20th century.

In 1905, a thin, coiling spiral-shaped organism was observed in a fresh scraping from a patient by Fritz Schaudin and Erich Hoffman in Hamburg. They originally called it *Spirochaeta pallida*, but the name was later changed to *Treponema pallidum*; the organism responsible for these centuries of disease was finally identified.

In that same year, in Berlin, August von Wassermann developed the first serological test for the diagnosis of syphilis using a liver extract from an infant with congenital syphilis. As the organism cannot be cultured in a laboratory, this test became an essential tool for diagnosis.

The third German advance came from Frankfurt where

Dr. Paul Erlich was investigating the use of arsenic compounds as antibiotics. On his 606th try he produced arsphenamine. He called his drug Salvarsan, but it also acquired the nicknames of "606" and "the magic bullet." A later compound, "914" (about 300 tries later), was developed to reduce the side effects of the therapy.

Despite these accomplishments, syphilis was still a prevalent disease seen commonly by the medical profession. An anonymous poem of the time encapsulated the clinical findings for medical students:

There was a young man from Back Bay
Who thought syphilis just went away
He believed that a chancre
Was only a canker
That healed in a week and a day.

But now he has "acne vulgaris" —
(Or whatever they call it in Paris);
On his skin it has spread
From his feet to his head,
And his friends want to know where his hair is.

There's more to his terrible plight:
His pupils won't close in the light
His heart is cavorting,
His wife is aborting,
And he squints through his gun-barrel sight.

Arthralgia cuts into his slumber;
His aorta's in need of a plumber;
But now he has tabes,
And saber-shinned babies,
While of gummas he has quite a number.

He's been treated in every known way,
But his spirochetes grow day by day,
He's developed paresis,
Has long talks with Jesus,
And thinks he's the Queen of the May.

The truly dramatic turning point in the search for a successful treatment was the use of penicillin. In 1943, Dr. John Friend Mahoney of the United States Public Health Service reported that "four patients with primary lesions were treated with 25000 units of the drug intramuscularly at 4-hour intervals night and day for 8 days. The chancres all became darkfield negative [non-infectious] within sixteen hours." A safe and effective cure had finally been found.

The Tuskegee Study

One of the saddest chapters in medical history concerns the Tuskegee syphilis study. In 1932 the Venereal Disease

Branch of the United States Public Health Service initiated a study to determine the long-term consequences of syphilis. Tuskegee, in Macon County, Alabama, had one of the highest rates of syphilis in the nation. Several hundred black males, mostly poor and uneducated, were offered free lunches, free transportation to medical facilities, free medical care and free burials to enroll in the study. Those who had syphilis were divided into two groups: one group received what was then the best treatment for syphilis (arsenides and mercurials) while the other group received no treatment at all. It has been argued that pre-penicillin therapy was hazardous in and of itself, and justified the no-treatment group of the experiment. However, the study continued even when penicillin became available and yet it was still denied to the no-treatment group. It is highly doubtful that such a decision would be made today.

Dr. George Hatem in China

One of the lesser known but more interesting stories in the history of syphilis is that of a physician of Lebanese extraction named Dr. George Hatem. Hatem was born in Buffalo, New York, but was raised in Greenville, North Carolina. An excellent student, he was Valedictorian of his high school in Greenville and later attended the University of North Carolina at Chapel Hill. He received his medical degree from the University of Geneva in Switzerland in 1933.

After graduation, he travelled to China and worked in the charity wards of Shanghai. Faced with the striking poverty and horrendous living conditions of the people, he became involved with the revolutionary underground. When a call came from Yanan province "for an honest journalist and a doctor," Dr. Hatem and Edgar Snow were chosen to join the Long March with Mao Zedong. Hatem so impressed Mao with his intelligence and dedication that he became a high-ranking official in the communist government following the revolution. He was the first foreigner to become a citizen of the People's Republic of China and he took the Chinese name of Ma Hai-teh.

Dr. Hatem began a program in the 1950s to eradicate

venereal diseases in China, especially syphilis. The first measure was to close the houses of prostitution, treat their employees and send them back to their villages. He next identified regions of high prevalence and targeted them for mass screening and treatment. In some of the Inner Mongolian regions, almost 50% of the population was infected with syphilis. All Chinese undergoing any type of physical examination were screened through serological testing. In an interesting justification of controlled trials by politics, Hatem relates how therapy was chosen in the journal article curiously entitled "With Mao Tse-tung's thought as the compass for action in the control of venereal diseases in China": "In the early days after the liberation, three treatment regimens were in use — penicillin, arsenicals and the mercurial preparations.... Arsenicals for venereal disease were on the way out in China until the arrival of 'Soviet medical experts' who insisted on continuing this form of treatment.... Politics was 'put in command' to test the truth through practice, a sure criterion which Chairman Mao Tse-tung has always taught. A series of comparative studies were made and the results showed that a rapid course of penicillin was best suited for wide use and could wipe out syphilis."

His efforts brought about a significant reduction, if not near eradication, in the prevalence and incidence of syphilis in the People's Republic by the 1960s.

In the United States, however, the complete control of syphilis has eluded us. After a dramatic drop in caseload following a post-World War II high of over a half a million cases, we are beginning to see a rise again in the incidence of this disease. In North Carolina, there were 1094 reported cases of syphilis in 1986; in 1988, there were 1655. Even more disturbing is the reemergence of congenital syphilis, which went from no cases in 1986 to 7 in 1988. Congenital syphilis can be taken as a marker of both poor prenatal care and a rising prevalence of syphilis.

The thread of syphilis winds from Haiti to Europe to Macon County to Greenville to China, through Columbus to Charles VIII to Henry VIII to Dr. Mahoney to Dr. Hatem. We can paraphrase Dr. Osler's quotation — to learn syphilis is to learn history. □

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Reference: 1. Data on file, Burroughs Wellcome Co.

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Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk consideration in specific disease categories:

First Episodes (primary and nonprimary infections—commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS—Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established (see CLINICAL PHARMACOLOGY—Microbiology).

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In *2 in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficacy but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recov-

ery of sperm production was evident 30 days post-dose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day i.v. for one month.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rabbit (50 mg/kg/day, s.c. and i.v.) or in standard tests in the rat (50 mg/kg/day, s.c.). In a non-standard test in rats, fetal abnormalities, such as head and tail anomalies, were observed following subcutaneous administration of acyclovir at very high doses associated with toxicity to the maternal rat. The clinical relevance of these findings is uncertain. There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in standard animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS—Short-Term

Administration: The most frequent adverse reactions reported during clinical trials of treatment with Zovirax Capsules were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments with Zovirax Capsules (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73 m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"—Bottles of 100 (NDC-0081-0991-55), and unit dose pack of 100 (NDC-0081-0991-56). Store at 15°-30°C (59°-86°F) and protect from light and moisture.

U.S. Patent No. 4199574

* In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.



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AHEC and Information Dissemination to the Practitioner

Library Services

Today's physicians are at risk of "information overload." Increasingly, they and other health professionals are turning to computer databases for quick and targeted access to information on clinical and office management issues. Computer databases are only one of the services provided by the statewide AHEC Library and Information Services Network. The network links AHEC libraries directly to practitioners and regional health care agencies, as well as to the state's four academic health science libraries. The libraries also have direct access to the resources of the National Library of Medicine and many other health science libraries throughout the country. Each AHEC library is staffed by professionally trained medical librarians who provide health care practitioners and students with current information and educational support services.

The librarians are available to show practitioners how to access databases such as Medline and Grateful Med. In order to deliver books, audio-visual materials, computer searches, technical assistance and other information, AHEC librarians often "circuit ride" to remote areas of their region.

The AHEC libraries house more than 41,500 books, 15,000 audio-visual programs and 2,400 journal subscriptions. The libraries are connected by computer, providing quick and efficient location of materials anywhere in the state. During 1988-89, AHEC librarians provided 126,021 circulation services, processed over 76,000 information requests, and handled 8,765 electronic database searches.

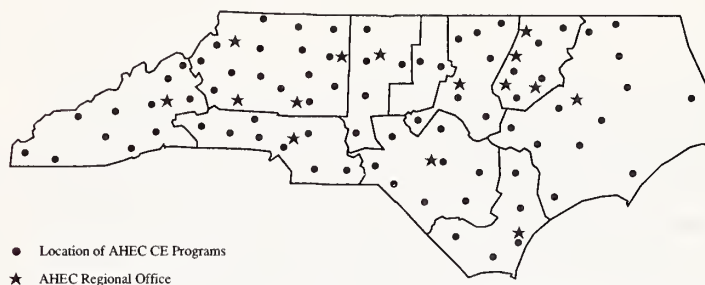
Advancements in technology have made it possible for health professionals to receive information through satellite, computer, videotapes, and other media. The Learning Resource Centers of the AHECs help provide technical assistance in using these sources, and to produce slides, videotapes and displays.

Continuing Education

Continuing education (CE) is another area of importance to health professionals. In 1989, the AHECs offered over 4,600 continuing education programs, often presented in association with an affiliated health science school, to practicing health professionals throughout the state. Because the needs of professionals vary from region to region, the types of programs offered and the methods of

Figure 4.

Locations of AHEC-Supported Continuing Education Programs for Health Professionals (1988-89)



evaluating needs also varies. Figure 4 shows the statewide distribution of AHEC-supported CE programs.

No matter how distant they may be geographically, our health science schools stay in touch with practitioners through outreach educational programs provided in association with the AHECs. Each AHEC has professional CE coordinators in all disciplinary areas who plan and evaluate programs. These coordinators work with advisory committees from hospitals, mental health centers, nursing homes, physicians' offices, health departments, and other health related organizations, providing consultation and technical services and evaluating their individual CE needs. The majority of the CE programs sponsored by the AHECs provide professional credit. These courses take place in rural community health centers, community colleges, and mental health centers, as well as in hospital settings.

Medical Specialty Consultation Clinics

Over 3,000 AHEC-supported specialty consultation clinics were conducted in 78 communities by faculty from the state's medical and dental schools in 1988-89. These day-long clinics are held year-round at the AHECs, health departments, and other community facilities. The clinics provide educational opportunities for medical residents, medical students, and dental students who accompany faculty to the sites. These clinics are held in pediatrics, internal medicine, obstetrics/gynecology, neurology, psychiatry, radiology, surgery, orthopedics, dermatology, family medicine, dentistry, pediatric cardiology, gynecologic oncology, and gynecologic endocrinology. □

Issues in Information Dissemination and Professional Competence

James C. Leist, Ed.D.

Professionals have traditionally accepted the responsibility to stay current with changes in their world of practice in order to maintain professional competence. Physicians have been among the leaders in advocating the importance of staying current in order to provide the care needed by their patients.

How does a physician maintain that currency? Several studies have documented that physicians use journal reading as their most important source of information and continuing education.¹⁻³ Reading is followed closely by consultation with other colleagues and by continuing medical education programs. If this is the case, then physicians in North Carolina are fortunate to be part of the community/university partnership which composes the North Carolina AHEC Program. Through the provision of library services, local and regional continuing medical education and specialty consultation clinics, the Program is working with physicians across the state to help them stay current. A side effect of this partnership is the promotion of a professional environment which makes any community a more attractive practice site.

Information and Library Services

Two recent articles report on the importance of medical literature to maintaining professional competence. Williamson reported on three basic information management functions: information seeking, information dissemination, and information implementation among physicians. His conclusion was that practicing physicians "require substantial help in meeting current science information needs. (An) Increase in such resources as 'validated reviews' or 'expert networks' might help these needs."⁴

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In that same issue Huth pointed out that until specialty societies "develop new superior kinds of information sources" physicians must acquire means of scanning a large fraction of current medical literature rapidly. In addition, he indicated physicians must develop means for gathering and saving for future reference the critical judgments of others about current literature.⁵

Williamson and Huth thereby point to a critical need to link the practicing physician to medical literature. The North Carolina AHEC Program's Library Information Service (LIS), with its 23 trained medical librarians throughout the state, is a unique resource for any health provider, especially physicians. As a link between the practitioner, the medical schools, and other information resources such as the National Library of Medicine, the AHEC librarians have developed a statewide network of medical and health resources unparalleled in our country. Thibodeau and Gillikin, in a following article, summarize the services available through the AHEC LIS Network.

The AHEC system is the "expert network" of which Williamson speaks and certainly gives North Carolina physicians the opportunity to be an exception when Huth talks about the underused medical literature. It is true that a physician, no matter where in the state, has access to information from anywhere in the world at a reasonable cost within a short period of time. The North Carolina AHEC LIS Network is studying methods to provide even more sophisticated, more timely, and more affordable information services to North Carolina physicians and other health providers. The network will increase its use of technology, especially computers and telefacsimile, and explore ways that the librarians' role might be altered to help physicians manage the proliferation of information which they must survey and use to maintain their professional competence. In addition, the AHEC medical librarians will continue the integration of library information services with continuing education at the local and regional level. The AHEC Program is unique in that information services can be coordinated with continuing medical education programs and consultation clinics to enhance physician learning.

Continuing Medical Education (CME)

Even though access to needed literature is the prime form of continuing medical education, it isn't the only mechanism for maintaining professional competence. North Carolina's AHEC Program has increased the availability and accessibility of formal CME programs to practicing physicians. No longer is it necessary to go only to an academic health science center for CME needs. Throughout the nine AHEC regions, CME is regularly offered by AHEC-based faculty and by visiting faculty from all four medical schools. This type of programming allows CME providers in each AHEC to meet the specific needs of local physicians and other health professionals at a more convenient site, and closer to the point of application.⁶ In addition, it allows CME directors at the medical schools to turn their attention to more complex clinically oriented programming using a clinical traineeship (mini-residency) format.

Since 1977, the AHEC Program has offered a larger number of CME programs annually in an increasing number of locations. In 1988-89, the Program held 2,367 programs for 46,266 attendees, indicating the success of the AHEC network in providing available and accessible CME programming to physicians.

Since each AHEC has a primary academic affiliation with one of the state's four schools of medicine, each AHEC is also affiliated with that school's Office of CME. These partnerships are very strong and the AHECs have support from the four Associate Deans for CME. As long as each AHEC-sponsored CME program is developed in coordination with the appropriate School of Medicine, the AHEC is able to award AMA-recognized CME credit to the physician attending the program, whether it is held at the AHEC or in any county of the state.

An additional strength of the AHEC CME network is that it encompasses all health providers. Not only can the interested physician keep up to date relatively easily, but so too can the nurse, the physical therapist, the pharmacist, and all other health care practitioners who work as part of the health care team.

Consultation Clinics

Another widely used method of CME is consultation with a colleague. While this activity usually revolves around an immediate clinical problem or procedure, the North Carolina AHEC Program has expanded this concept to include extensive use of regularly scheduled consultation clinics. Generally, specialists from the medical schools have been invited to the AHEC/community site. The specialist sees patients with local clinicians and may provide grand rounds or a specialty conference while at the site. The procedure offers two advantages — education and training for the local physicians and primary care residents based at the AHEC while providing medical care for special problems in the community. Another benefit is the exposure to the need for specialty services in the community for the residents or students who often accompany the visiting

specialists. On several occasions such residents have decided to set up practice in these towns upon completion of their training.

One tremendously important and unique aspect of the AHEC university/community partnership is the voluntary teaching contribution made by many practicing physicians. Although teaching is not considered a main aspect of CME, the clinicians in our communities who take time to teach medical students and residents find the experience to be one of the better forms of CME.

Whether a physician in practice is maintaining professional competence by gaining new information, learning new skills, validating current practices through the library, or by participating in formal CME activities, consultation clinics, or by teaching, the North Carolina AHEC partnership linking academia and practice is unique as attested to in the following six articles. There is no evidence in the medical literature to suggest that any other state has seen its private and public medical schools, its other health science schools at the university and community college level, its state government, its community agencies, and its health practitioners working together as effectively to offer the wealth of education and training opportunities that are available to physicians and all health professionals in North Carolina.

Future Medical Practice Issues

There are pressing issues which will continue to challenge the AHEC Program, the four schools of medicine, and practicing physicians wishing to maintain professional competence in the future. These fall into four interrelated categories: quality, cost, ethics, and legal issues.

Quality In addition to the physician who must bear the profession's standard for quality, there are outside forces emphasizing changes in the system to promote quality. The Joint Commission's "Agenda for Change" is a program that is attempting to set standards for hospital care which will influence quality standards. The federal government's DRG-based prospective reimbursement program has set certain standards for medical care. Both of these activities plus the increased interest from the patient and the third party payer will push the medical profession and consequently medical education to even higher and more explicit standards. These developments will provide new challenges to CME programs, perhaps basing more of these programs on locally generated data concerning quality of care.

Cost Third party payers (government and industry) are continuing to study their expenses related to health care delivery with the intent of capping these costs while maintaining high quality services. With the increasing age of our population, the spread of AIDS, the proliferation of new technology and the labor-intensive nature of health services, health care cannot decrease its costs, yet it cannot continue to increase them dramatically. Information services and continuing medical education in new forms and formats can provide easy, more

efficient and timely access for clinical problem solving and help maintain the costs of health care.

Ethics Increasingly, the medical profession is called upon to deal with ethical questions in the delivery of medical care. In light of the increasing costs, the potential rationing of services, and the continued demand for quality, ethical dilemmas will occur with increasing frequency. The impact of these ethical dilemmas on continuing education is uncertain, yet it is clear ethics will play a major role in medical practice of the future and in the need to maintain professional competence.

Legal Issues This issue for contemporary and future physicians interacts with all other issues. The professional liability situation provides another reason for the physician to be even more concerned about professional competence. This may lead to practice patterns that increase costs significantly. It seems clear that legal issues will increasingly influence the quality and cost of care, and the ethical dimension of medical practice. Likewise, these issues will set forth new challenges to the organization and content of CME.

Future Issues in Information Dissemination and Professional Competence

As the medical schools, the AHECs, and the medical profession work to develop CME programs that respond to future issues of medical practice, they must also work to increase the efficiency and effectiveness of the system by which CME is provided to the practitioner. We are in an era when information technology is ever present and changing rapidly. As a generation of computer literate physicians completes residency training there will be new demands for access to data bases as new technology becomes available. Meanwhile, physicians who have been practicing several years may want to learn to use computer technology.

All physicians, young and old, will want continued access to formal classroom programs close to home and will want even more contact with specialists at university or AHEC centers. Finally, as specialty re-certification expands to meet community and third party concerns for quality, there will be a need for more CME programs that provide a comprehensive and periodic update to a specific medical field.

Each of these needs presents challenges to the AHEC system, which is working with the affiliated medical faculties to be certain that practitioners have access to a variety of data bases, to professionals who can help them with their need to master new technologies, and to CME programs that more nearly represent a comprehensive curriculum. The AHEC Program is also aware of the opportunity offered by interactive video technology and can envision the day when this is blended with other means to make an exciting and effective network for sharing medical information. The knowledge of physicians and the health of their patients will improve greatly with these developments. □

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Information When and Where It Is Needed:

The North Carolina AHEC Library and Information Services Network

Patricia L. Thibodeau, MLS, and Phyllis Gillikin, MLS

Imagine—Dr. Jones takes a short break from the busy morning schedule at his rural practice and finds a note concerning an appointment with a new patient tomorrow morning who is complaining of abdominal pain. A quick look at the secretary's note says the patient indicated she has been previously diagnosed as having a rare disorder. While Dr. Jones has general knowledge on this condition, he realizes that more in-depth information is needed to make sound clinical decisions.

Dr. Jones reaches for the phone and calls the region's AHEC librarian who takes the request and helps the doctor define specific information needs. Within the hour, a computer search of the current medical literature identifies twelve recent articles on the subject, but only two deal with the rare disorder and abdominal pain, and they are not available at Dr. Jones' local library. The AHEC library can either initiate a rush request, or assist the library manager of the local hospital where Dr. Jones is on staff, to initiate the rush request. A medical center library in the state responds by sending the documents via telefacsimile to the local hospital or local public library near Dr. Jones' practice. In addition, the AHEC library telefaxes two review articles and it is agreed that the other articles can be mailed. Dr. Jones picks up the current information and is ready for the appointment. During the week he receives a package from the AHEC library containing reprints of more articles, the full computer search, and titles of books which it has on the topic. The hospital library manager compiles a list of videotapes available from libraries in North Carolina which may be useful

for training the office staff. Later, the AHEC librarian sends Dr. Jones another article found while scanning a new journal issue, and a brochure on an upcoming continuing education course.

Health care practitioners in North Carolina do not have to imagine this kind of scenario—it is a reality. Through its 12 AHEC libraries, staffed with highly trained librarians, the North Carolina AHEC Program has created an information network to meet the needs of health practitioners throughout the state. Providing current information for health professionals on a timely basis is the primary function of the North Carolina AHEC Library and Information Services Network. Critical to the goals of the network is the strong support of the health science libraries of the four academic medical centers in the state. They have encouraged and nurtured the development of the AHEC network and are a major resource to community practitioners through the network.

Among the many services available from AHEC libraries are literature searches, both manual and computer generated, answers to specific clinical and management questions, journal article reprints, the loan of books and audio-visual materials, and the borrowing of materials from other health science libraries. AHEC librarians regularly scan medical and health care literature to provide practitioners with additional information on topics in which they are interested. This process is called "selective dissemination of information." The library staff also works to keep up to date on trends and issues in the field so they can acquire materials today which may be needed in the near future. AHEC libraries have developed special services to keep the practitioner current, including the routing of tables of contents from current journals, lists of materials available from the library in key subject areas, and newsletters describing new materials and services.

The operative words for AHEC libraries are networking and sharing. Through cooperative projects on a statewide level, AHEC libraries have been able to share both resources and

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expertise, and to provide access to essential information sources. The products of this networking include an integrated list of over 9,000 audio-visual programs available from both the academic health centers and the AHEC libraries. The libraries can locate journals in over 70 health care collections in North Carolina through a computer-generated database. This same database has made it possible for the network to participate in the National Library of Medicine's automated system, Docline, for the photocopying and loan of materials throughout the nation. This kind of sharing helps provide high quality information in a cost-effective manner.

Information service in the AHEC network is more than a collection of books, journals and audio-visual materials. The focus is on new ways to access information rather than on building larger collections. Special contracts with database vendors have enabled the libraries to access over 120 different computer search services covering the fields of medicine, nursing, allied health, mental health, sociology, and numerous non-health related fields. Through existing computer systems, AHEC libraries can directly search the computerized catalogs of major health science and university libraries to locate and borrow materials.

AHEC librarians have also developed training programs and consultation services for practitioners who personally wish to search medical databases implementing user-friendly systems such as "BRS Colleague" or "Grateful Med." These training activities are also readily available to the full-time AHEC based medical faculty who must conduct research as part of their academic responsibilities. While training practitioners in the use of computers and information technology was not envisioned as part of the role of the AHEC system in the mid-1970s, it is an increasingly important part of the work of the AHEC librarian and is likely to increase in importance as technology advances.

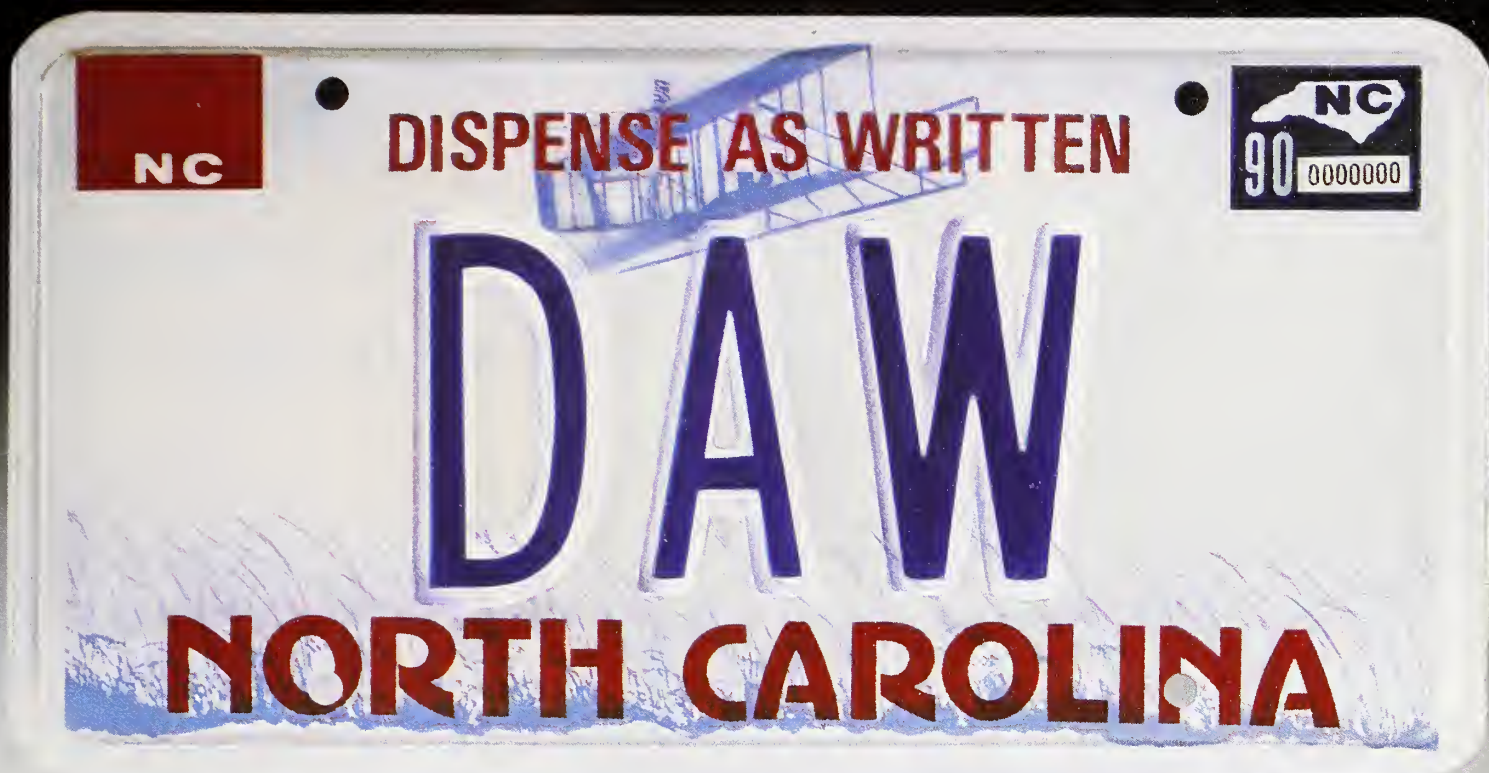
Key elements of the system are the highly trained information specialists and support staff within the AHEC libraries. AHEC librarians work directly with health care practitioners, students, faculty, and administrators on a daily basis. Each librarian has been trained in evaluating requests to determine the breadth, depth, and type of information required to answer questions, and has been trained in locating a wide variety of resources. The skills of the AHEC librarian also ensure that the library is able to handle a multitude of questions—from cancer treatment protocols to marketing to quality assurance to educational methods.

Another key strength of the AHEC Library Information Services Network is the continuous assessment of needs and existing resources of each region. Consultation and technical assistance services take the librarian into rural areas to provide information services needed by regional practitioners. Special outreach services such as "circuit riding" have been developed in some regions so that services are delivered by the librarian while visiting the health care facility. AHEC librarians also assist institutions in strengthening and developing their own internal information resources. This has included training staff

in smaller hospitals, health departments, mental health centers, and other agencies to serve as on-site library managers, generally as a part-time responsibility. This gives practitioners local access to a staff person who can easily help access the entire library network.

The AHEC Library and Information Services Network serves as the practitioner's gateway to information resources. Through the library system and its networks, practitioners have access to information resources which had previously been available only at academic health centers. The Network not only joins practitioners, institutions and agencies with state-wide and national biomedical communications networks, it also links local agencies and practitioners so that expertise and resources can be shared at all levels.

The North Carolina AHEC Library and Information Services Network looks forward to further enhancing information access and delivery for all practitioners in all settings, and to responding to new trends and developments in information technology. New technologies will enable the Network to provide access to and to deliver information services in faster, more efficient and cost-effective methods for the practitioner. Through the additional use of computers, electronic information systems, and computer-generated databases, the Network envisions the full realization of its goal of information when and where it is needed. □



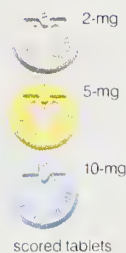
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Rural Community Health Centers:

The Information Network and Professional Competence

Paulette Ingram, M.D., and Jane McCaleb, M.D.

The decision to leave the shelter of the university teaching center with its state-of-the-art resources and specialty consultants for practice in a rural area raises many professional concerns for the graduating resident. "Overworked," "out of touch," and "isolated" are terms that usually come to mind. The formation of AHEC was a partial response to these very real problems facing physicians in smaller communities. North Carolina was among the first to show its commitment to recruiting health providers into smaller communities through the Office of Rural Health Services, and to helping maintain the knowledge of these physicians and allied health professionals by a network of educational support services.

Despite these efforts, many rural communities are facing an increasing shortage of medical services at a time when there is a surplus of physicians in some localities and specialties. We continue to struggle to change both the reality and the perception of the rural physician as one who works long hours in hospitals with poorly trained staff and who is left further and further behind as medical knowledge follows an exponential growth curve. No single strategy will solve these problems, but the AHEC Program offers a varied approach in its services to physicians and other health care providers in rural areas.

Continuing Medical Education and Information Services

Isolation, primarily social and academic, is probably the most feared concern for professionals who choose to practice in a rural area. This stereotype of rural practice has steered many prospective practitioners away from the "old fashioned practice" into the "exciting and advancing" urban medical centers.

Speaking from experience, however, the story is quite different. Rural practice is indeed the continuous frontier for medicine. In their isolation from major medical centers, rural practitioners must evaluate and treat patients with challenging illnesses who would ordinarily be referred to a specialist. They are responsible for the total care of their patients.

Keeping up on medical advances and education in a rural practice is not a simple matter of attending a lecture on campus or walking next door to consult colleagues. However, the formation of the AHEC network has provided rural professionals with a vital link for continuing medical education.

The information services provided by the network are varied and can be truly tailored to each professional's needs. AHECs provide books, journals, and tapes that are geared to each medical specialty. Medline searches provide the most up to date and complete materials on any medical topic. The Medline information allows rural practitioners to share updated and new topics with colleagues as well as with their patients. Another vital resource from AHEC has been the monthly lecturers, who come to rural settings and present didactic and occasionally "hands-on" presentations.

However, a newer area that needs to be explored further involves the physician who has been in practice several years and who needs to learn newer invasive procedures. Because of liability issues, many universities do not allow invasive procedures to be done by a trainee unless the physician is on staff. This makes it difficult to find a course which provides hands-on experience. Is a weekend didactic course in colonoscopy based upon practice on plastic models sufficient to allow a community practitioner to perform the procedure? Is dog-lab training for Swan Ganz catheterization adequate preparation for doing the procedure on humans? A hospital should be reluctant to grant privileges to someone who has never actually performed the procedure. This turns out to be a special problem in small hospitals if there is no other physician already on staff to proctor the physician in that procedure. How can smaller hospitals stay current and still ensure competent care? Most physicians cannot spare the time for a prolonged mini-fellowship. One possible solution: tertiary centers could offer a

From the Roanoke-Amaranth Community Health Group, Inc., Jackson. Dr. Ingram is Pediatric Preceptor, Department of Family Medicine and Dr. McCaleb is Clinical Assistant Professor of Family Medicine, UN-CH School of Medicine.

combination of didactic materials and observation in the tertiary center, then send the specialists to hospitals to proctor on site. Perhaps the AHEC system could help with this.

Technical Support

In addition to the traditional clinical education model, the AHEC has expanded its role by offering technical assistance to physicians and hospitals. For example, recent changes in Medicare regulations for in-office laboratories will have a major impact on most physician offices. New guidelines for quality control of laboratory procedures will require technical skills not available in the average office lab. The physician may have to choose between dropping in-office lab testing, continuing with current lab procedures and facing penalties, or hiring consultants to set up the necessary programs for certification. Our local AHEC, the Area L AHEC, provided, with the help of federal AHEC funding, the expertise to analyze current lab techniques and to assist in writing lab procedure manuals. The next step will be to develop ongoing laboratory quality control and monitoring.

The focus of the Joint Commission on Accreditation of Health Care Organizations and of the Medicare Program is already shifting from measuring structures, processes, and length of stay to measuring quality of care. This means hospital staff members need to be better educated in non-clinical areas such as credentialing of providers, monitoring and evaluating medical care, guaranteeing due process, and developing other legal aspects of the functioning of a medical staff. Many physicians have had no exposure to these aspects of medical practice which will require further development in the next five years. The financial success and the continued accreditation of hospitals will be dependent on the success of hospitals and their medical staffs in these developments. This, in turn, depends upon the effectiveness of information dissemination on these subjects. The challenge to the medical profession, to our hospitals, to our academic centers, and to AHEC in this broad area is apparent.

Medical Student Teaching

Since 1979, our health center has been a teaching site for medical students from the UNC School of Medicine. Since that time, we have had over 100 medical students rotate through our center, including students from ECU, whom we began precepting in 1983. We have learned much about the process of medical education in our roles as clinical faculty.

Medical students can be one of the most effective tools that practitioners have to change the perception of rural medicine. Some at tertiary centers live with the illusion that they are the center of the universe of medicine. As a result, medical students confined to this setting seldom realize the limited spectrum of illnesses that they see at these centers. Since primary care

physicians do not refer the patients whom they can adequately treat, medical students all too often see only those patients whose care goes beyond the capabilities and resources of the primary care physician.

A primary care rotation in a rural community health center such as ours demonstrates the wide range of problems that can be successfully treated in a local ambulatory setting. In return, the student may begin to discern the relatively narrow scope of a tertiary, specialty-oriented institution. In a 10-15 minute visit in the primary care setting, there is not time for the luxury of an exhaustive history and physical. Instead, one must learn to focus on the problems that bring the patient to the doctor and identify those that pose a serious danger. The initial differential diagnosis and treatment plan must be concise and quickly developed. Additionally, the primary care setting offers the student the luxury of seeing a patient over several visits and in different settings.

A primary care rotation is usually the only time the student deals directly with an attending physician in a close relationship over the duration of the rotation. Student evaluations are therefore provided by a physician who is quite familiar with the student. For the first time, the student may find he or she has valuable input to patient care as he or she may have had more exposure to one of the latest techniques or to a new drug than the preceptor has had. We learn a great deal from our students.

Our students frequently call back and ask for letters of recommendation, and then write later to say how important a letter that really addressed their strengths and weaknesses has been. We have been fortunate to recruit two of our former students into our practice. Although medical student teaching can be time consuming, students can be successfully integrated into the medical team and gain insight into the special role of the rural health center in the community.

Yes, practicing medicine in a rural area is challenging and may not be for everyone. But thanks to the efforts of the UNC School of Medicine and its statewide AHEC Program and to the efforts of the North Carolina Office of Rural Health, the North Carolina Primary Care Association, and other health related organizations, practicing in a rural area does not mean there are no professional services or educational opportunities available. There are still several obstacles to overcome, but rural practitioners no longer face professional isolation and are able to stay current on modern medical practices. □



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Impact of the AHEC Information Network on Private Medical Practice

Raymond Bianchi, M.D.

Maintaining a standard of knowledge and keeping up with the rapid changes in medical technology and therapeutics is a constant challenge. Our patients, peers, students, and government demand that physicians perpetuate a high level of competence and continue their education indefinitely. Private practitioners, who work 12 to 14 hours a day and up to 100 hours per week, and other health care professionals find it a struggle to stay current. Those avenues that offer ready access to quality continuing education are welcome. AHEC has come to the forefront in this area.

I have had the opportunity to participate at the extremes of medical practice—full-time academics and private patient care. Upon completion of my internal medicine residency at Charlotte Memorial Hospital and Medical Center (CMHMC), my clinical skills and grasp of the medical literature were polished, particularly at the time I was preparing for the specialty board examination. My knowledge was enhanced further when I joined the full-time faculty at CMHMC and, through AHEC, received a full-time appointment in the Department of Medicine at the University of North Carolina-Chapel Hill. During my six years of academics, I regularly served as attending physician on the ward services, conducted morning report, and authored several journal articles, a medical text and an in-house periodical. As part of the AHEC's continuing education programs, I lectured in all of the hospitals in the Charlotte AHEC region. During the summers I participated, as an instructor, in a board review course for those preparing for the Family Practice certification examination.

The above litany of my experiences is meant to indicate that staying current was easy. It was part of my everyday routine.

Seven years ago, I joined the private practice of the Charlotte Medical Clinic. The time commitment to patient care has been extensive and the hours set aside for education have

dwindled. However, not only is it imperative for the patients' well-being that I maintain a solid data base but it is also important for my teaching responsibilities. I continue to be a ward attending physician through the Charlotte AHEC two months a year, where I have regular contact with residents based at the CMHMC and with junior and senior medical students from UNC-CH. I also precept senior students from the Bowman Gray School of Medicine at Wake Forest University three to four months a year. Discussing pathophysiology or pharmacokinetics with house officers and students was once second nature. Now it requires perpetual renewal on my part.

In an effort to stay current, I subscribe to the major periodicals and scan the throw-away journals. Regional or national meetings are attended once or twice a year, but this is still not enough to keep up with the changes in our profession. Fortunately, the Charlotte AHEC has provided ways to fill in the information gaps, as do the eight other AHECs across the state. The two major areas where AHEC has been of assistance are its library and its continuing medical education programs.

The Charlotte AHEC library is two miles from my office. The facility is open in the evenings and on Saturday, making it available after office hours. Housed within the library are over 5,000 monographs, 2,000 audio-visual titles and 350 journals—most of which can be checked out for home or office use. Audio and videotapes are particularly helpful in that many of the programs are recent lectures that can be used during a busy day. I can listen to a tape while driving between the hospitals and my office or view a tape after office hours. Videotapes are also of benefit for patient education. Patients often desire information about their problems beyond that supplied in the time of an office visit. Many of the tapes are presented so that a layman can understand the essentials of the program. The tapes can be viewed in the physician's office or loaned to the patient for home use.

Often information is needed, but time constraints prohibit library use. A patient's perplexing problem or a controversial issue on ward rounds generates a request to the librarian for review articles or case reports. Usually within the same day of the request, reprints are ready for review.

From the Charlotte Medical Clinic. Dr. Bianchi is Clinical Associate Professor of Medicine, UNC-CH School of Medicine.

Recently I was asked to update two chapters I had originally written for a text eight years ago. I consulted with the librarian at the Charlotte AHEC by phone and requested a literature search to fill in that eight-year gap. By tapping into the National Library of Medicine and Bibliographic Retrieval Service computers, the librarian provided an extensive bibliography on both topics within two days and at a very nominal fee. I then selected those titles I felt pertinent for the update and, again by phone, asked the librarian to obtain the reprints. Several days later, I had the articles and the rewrite began. To this point, the librarian had done all the footwork and my time expenditure and cost were minimal.

Physicians who are trained in computers can accomplish their literature searches without involving the librarian through the use of two programs — Grateful Med and Paperchase. The library staff welcomes the opportunity to arrange training sessions on the mechanics of these programs. With a phone modem either program can be linked with the physician's own personal computer.

The other major area where AHEC assists the private practitioner is in continuing education. Maintaining a solid knowledge base is not only important for patient care but will become a requisite for documenting competence and taking recertification exams.

The number of medical programs presented by the Charlotte AHEC is impressive: over 300 in a six-month period, with one-half being held outside Mecklenberg county. In cooperation with the various medical departments at Charlotte Memorial Hospital, grand rounds are produced on a regular basis. The Department of Internal Medicine presents grand rounds weekly with one of these conducted by a UNC-CH faculty member flown to Charlotte by AHEC's Medical Air Operations. Independent of the medical departments, AHEC produces one-hour lectures, day-long seminars, and review courses that last several days. Most of the programs qualify for professional credit. A sampling of the topics presented within the last year include: Depression in the Older Patient; Rocky Mountain Spotted Fever; TNM Staging; Liver Transplantation; Intravenous Activase Thromboplastin Activator Protocol for acute myocardial infarction, and AIDS.

AHEC's continuing medical education programs are not just directed at the physician, but also at office personnel. Many programs are held specifically for nurses, laboratory and radiologic technicians, and office support staff.

AHEC is committed to helping the physician's office. Two recent programs have been beneficial to our clinic's business department in dealing with recent changes in Medicare rules and regulations. In August 1989, the Charlotte AHEC initiated a computer-assisted laboratory with the intent of helping health professionals and their staffs with various learning processes, as well as with improved ways to manage the office.

As a private practitioner, I appreciate and depend on AHEC's concern for continuing education, and its commitment to the advancement of medicine and other health professions. At a time when it is becoming more difficult for the individual to maintain a high level of competence, AHEC and its affiliated schools of medicine have continued to develop ways to help pursue this. The challenge for the program's future is not so much in finding additional ways to make our academic pursuits easier but rather in maintaining its high standards. It is hoped the powers that legislate and fund the statewide program will continue to recognize its many benefits and allow it to remain a leader in North Carolina medicine. □

Serving the Needs of Nursing Professionals in Rural Areas

Helen M. Brinson, MSN, RN

North Carolina is a very diverse state in many aspects. Mountains, coastal plains, and regions between contain rural, isolated areas. These rural areas have been less progressive in the development of technology and education than the more urban areas. For the past 16 years, the North Carolina AHEC system has been offering high quality and cost-effective educational services to health professionals in all regions of the state to keep them informed of new technologies and to decrease the feelings of professional isolation. Through AHEC's educational programs, which are linked with university health science centers, the same services that once were offered only by the university or by the private sector have been regionalized, decentralized, and brought directly to all regions of the state. The nine AHECs have become "the" organized system for meeting the educational needs of nurses in rural areas, for they bridge the gap between education and practice, and provide programs close to home for busy practitioners.

The AHECs carry out their mission through continuing education, consultation, technical assistance and the clinical rotations of students. In continuing education, the AHEC system has been able to coalesce the teaching expertise available in universities, large hospitals, and health departments along with in-state and out-of-state consultants, and can therefore offer timely and high-quality programming to nurses and other health professionals in their practice settings. The quality of the education offered is of the same caliber as that offered in academic institutions. Also, the same processes of program planning and assessment are utilized for educational activities in rural areas as in traditional academic settings.

One major component of AHEC programming relates to nursing. This component provides activities designed to expose nurses to information about new technology, and about innovative methods and models of professional nursing practice.

Ms. Brinson is Associate Director of Nursing Education at the Eastern AHEC in Greenville, and Adjunct Assistant Professor at the ECU School of Nursing.

Because of its unique partnership with the many schools of nursing in the state, the AHEC network can respond rapidly to specific needs and requests for a variety of educational services. The system's greatest strengths lie in resource identification and in a rapid response to the educational needs identified by nursing professionals.

Since its inception in 1972, a primary focus of the AHEC Program has been to provide continuing education based upon the identified needs of nurses and health care agencies in its various regions. Yet another focus has been to develop new clinical training sites for both undergraduate and graduate nursing students. The main objective of such clinical experience has been to attract and encourage nurses to practice in agencies and institutions in rural communities after graduation, and to serve as a bridge between practice agencies and schools of nursing. A third focus which has evolved in recent years has been to establish off-campus baccalaureate programs for registered nurses living and working in rural counties who are unable to leave family and/or job to travel to the university.

The focal point of all nursing programming is the AHEC nurse coordinator. The majority of the nursing coordinators in the AHEC system are master's educated, and several hold a doctorate degree. These highly trained nurses coordinate and produce all nursing education programs of the AHEC, and have adjunct faculty appointments at a school of nursing in their region. These educational coordinators have become regional support personnel for nurses in all employment settings, including hospitals, health departments, mental health centers, nursing homes, physicians' offices, and others.

Consultation and technical assistance are also integral parts of AHEC's activities. These are offered most often in an informal manner starting with requests for services from nursing professionals which are then linked to available resources. Areas of consultation and technical assistance are numerous and varied: teaching, staff retention and recruitment, management, leadership, clinical preceptorships, and special projects.

An important characteristic of consultation and technical assistance is the ability to respond readily to a client once a need

has been identified. Consequently, such services may often be provided by telephone. These might include: identifying resource people for workshops; providing information on nursing as a career; and counseling nurses about off-campus BSN and MSN opportunities.

The phones ring daily with requests for help. Some of the calls are easy to answer and require only a few minutes. Others are more involved and require much more time. Typical examples of technical assistance include arranging for the infection control nurse from a rural hospital to communicate with the infectious disease division at East Carolina University School of Medicine to determine the latest guidelines on the management of waste products of AIDS patients, or helping a local staff development director identify faculty for an education program being planned in-house.

Throughout the rural areas the nine AHECs are major providers of continuing education to nurses. Programs are designed to enhance the quality of nursing practice, the ambience of the practice environment, the quality of nursing education, and the scope of nursing research. The emphasis is to provide high-quality and cost-effective programming to meet the unique needs of nurses in diverse settings.

Continuing education is no longer a luxury for our health professionals, it is a necessity. Nurses in all practice areas are experiencing the unique demands of the "high-tech," "high-touch" environment while at the same time coping with the current nursing shortage. Programs must be designed to address the complex issues and challenges that face nurses in clinical practice, education, and management.

As in the past, the greatest demand for continuing education is in the clinical practice areas. New and more sophisticated services offered by the health care agencies require in-depth nursing skills. Specialty certification in nursing has become a major trend. Many agencies even recognize certification of clinical expertise in the specialty areas as an opportunity for upward mobility and greater financial compensation. Consequently, there has been an increase in requests for certification review programs and for American Nurses' Association credit for programs designed to maintain certification. For example, review courses are offered for nurses preparing to take the national certifying exam in nursing administration, critical care nursing, medical-surgical nursing, pediatric nursing, geriatric nursing, and perinatal nursing.

An improved professional environment is fostered through continuing nursing education. The AHEC sustains relationships with rural agencies and strives to improve geographic and specialty distribution through the recruitment and retention of health manpower to underserved areas. The continuing education offered by the AHECs provides the connective tissue that supplements and supports the efforts by individual agencies and professional associations.

The advisory committees in each AHEC region are valuable resources. They keep the AHEC in touch with the "real world" of the rural practitioners and the rural agency. These advisory committees identify educational needs that can be

addressed both regionally and locally. In these committees, it is not unusual to find associate degree nursing directors and baccalaureate program deans talking together and identifying common continuing education needs for faculty in schools of nursing. Likewise, hospital nursing administrators and staff development directors are able to meet and discuss professional practice issues as they explore program topics for the AHEC to offer. The nursing coordinators in the AHECs meet with these groups and serve as catalysts to increase the dialogue between practice and education.

The success of the AHEC network cannot be overstated. Many nurses indicate it would be difficult to imagine North Carolina without an AHEC system. As described by a nursing manager from eastern North Carolina, AHEC has become a "lifeline." Prior to the AHEC Program, nurses were generally required to travel long distances to attend continuing education programs or to seek offerings in the immediate vicinity. However, they rarely found them available. In many instances, nurses had little or no opportunity to participate in educational activities. Now educational opportunities are easily accessible and meet the needs of many nurses in different areas. Since its inception, the AHEC Program has had a positive influence on improving the quality and quantity of educational activities related to nursing practice in the rural areas, which has also improved the quality of patient care. □

Serving the Information and Professional Development Needs of the Allied Health Professional

Nicholas Caras, Ed.D.

"Allied Health" is a term commonly used to identify several different categories of professionals who are engaged in diverse health care services. These categories include: physical therapy, respiratory therapy, occupational therapy, medical technology, radiologic technology, speech and hearing, and others. Many of the professionals included in these categories work in clinics, hospitals, public health agencies, rural health centers, long-term care settings, and rehabilitation units. A significant percentage are employed as faculty by various schools and colleges.

The Departments of Allied Health of each of the nine AHECs in the North Carolina system conduct education and technical assistance activities in multi-county regions. Their goal is to supply high quality educational activities to all allied health professionals. These activities are provided through a network of partnerships that bring together health science schools, local hospitals, and numerous state and local agencies. The Fayetteville Area Health Education Center (FAHEC), with which I am associated, is affiliated with the Duke University Medical Center (DUMC) and the University of North Carolina at Chapel Hill. Activities in allied health manpower development include continuing education for health professionals, clinical rotations for students, and technical assistance to health care organizations.

The Role of the AHEC Allied Health Coordinator

At FAHEC, the allied health department has developed a distinct style of operation through its relationship and affiliations with the community and DUMC. DUMC regards the FAHEC Allied Health Program as a major outreach component of the university and has generously supported the allied health activities. As a result of these efforts, the allied health department is accountable to many constituencies and has been strengthened year by year.

The primary function of an AHEC allied health coordinator is to provide quality continuing education to health professionals in a specific region, with emphasis on remote and medically underserved areas. Continuing education for health professionals focuses on programming for persons who have earned their professional qualifications in the health professions and who require additional educational experiences to maintain and expand skills in a changing environment. Trained health professionals require increasingly specialized technical knowledge to fulfill their roles in the health care system. The functions of the coordinator are administrative in nature: planning, budgeting, developing a promotion strategy, maintaining training records, and conducting on-site activities. The coordinator's goal is to make community professionals aware of current research findings and new techniques, and to promote the health team concept. The coordinator also works with university and community college faculty to bring their expertise to the community practitioner. Bridging faculty and practitioners is the major goal of an AHEC allied health coordinator. It is this function which makes AHEC unique in its service to both the academic and service sectors.

Dr. Caras is Director of Allied and Public Health, Dental and Pharmacy Continuing Education at the Fayetteville AHEC, and Adjunct Associate, Department of Physical Therapy at the Duke University School of Medicine.

AHEC's allied health programming places an emphasis on educational programs and workshops that are one day or less in duration and held at or near the professional's worksite. Conferences lasting two or three days are also popular.

Accredited Programs Through AHEC

All programs provide continuing education credit for professional recognition. Coordinators administer a large number of continuing education programs in a year's period. Last year in the FAHEC region, we conducted over 250 hours of continuing education for allied health professionals in the nine county region. Permanent records provide participants with proof of completion of continuing education programs for use in licensing, career planning, professional advancement, and related matters. Upon written request, participants may obtain a transcript of FAHEC programs they have attended. The coordinator also ensures that programs meet legal and professional requirements in the various health professions.

While state funding is vital to the AHEC infrastructure, coordinators must plan programs that recoup direct administrative costs. This results in charging registration fees that are, however, significantly below prevailing fees in the private sector. Core AHEC funding eliminates the need to recover high overhead costs such as staff time. The entire system allows coordinators to focus their attention on the quality of programs and on the needs of the practitioners of North Carolina.

The allied health professionals served by AHEC are very specialized and separated by disciplines. However, the role of the coordinator often focuses on the health care team approach. Multidisciplinary programs promote interaction among health professionals and influence a team approach to community practice.

Contact with professionals through survey questionnaires, program evaluations, and visits to employing institutions helps in planning programs that will meet the needs of the region.

Institutions and individual practitioners throughout the FAHEC region regularly report that the presence of AHEC programs is a source of considerable professional stimulation. Many institutions use their access to these activities as part of their recruitment of new staff, and offer to cover the expenses of attending AHEC programs as a benefit of employment. It is our belief that all of this has created a more stimulating professional environment that has helped improve the recruitment, retention, and quality of allied health personnel in the FAHEC region. □

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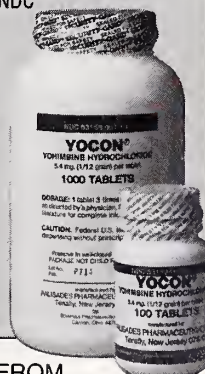
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Impact of the AHEC Mental Health Initiative on Rural Areas

Sara S. Grode, M.A.

There is a consensus among mental health professionals that the problems of rural mental health differ in many respects from those of urban mental health. The North Carolina AHEC Program, including its recently developed mental health initiative, places great emphasis on serving rural areas.

Focus on the special needs of rural mental health began in 1967 when Dorothea Dolan, MSW, was appointed coordinator of rural mental health services, research and training with the National Institute of Mental Health. Awareness of the differences between rural and urban mental health was also reflected in the formation of the National Association for Rural Mental Health in 1977 and in the appointment of a special Task Force on Rural Mental Health by the President's Commission on Mental Health. In 1982, Morton O. Wagenfeld published an extensive review of the literature on psychiatric epidemiology and found that "rural areas suffer from the dual handicap of high rates of problems or disorders, accompanied by a paucity of fiscal and agency resources to deal with the problems."¹

Despite this, little specialized emphasis on rural issues has traditionally been offered in the graduate training of psychiatrists, psychologists, social workers, or other mental health professionals. The North Carolina AHEC Program strives to meet some of these training needs by establishing student and resident rotations in rural areas and by facilitating access to current clinical information and resources for rural practitioners through an extensive library resources network. This includes specialized continuing education, based on needs assessments conducted in rural areas. A major part of the resource base of the AHEC Program is its links to the full range of academic health sciences training programs, but especially to the state's four academic departments of psychiatry which have made their faculty and residents available for AHEC activities.

Continuing Education

Most mental health centers in rural areas have small staffs who are expected to provide a wide range of services. Therefore, these professionals must be generalists, although they may have been trained as specialists. AHEC training can supplement earlier academic experiences so that community practitioners can more adeptly fill these multiple roles.

In addition to the breadth of clinical knowledge and skills needed, rural professionals often have other roles to fulfill. For example, many psychiatrists and clinical psychologists spend relatively small proportions of their time performing the clinical duties for which they were trained. In fact, David S. Ribner found that psychiatrists in community mental health centers spend less than half their time in clinical activities.² Although this finding applies in both urban and rural centers, it appears to be more of a problem in rural areas where there may be only one doctoral level professional on staff. Most often, these professionals spend a great deal of time in supervision and administration, skills not often developed in academic clinical training programs. In order to help those trained as clinicians improve their managerial skills, AHEC continuing education has included programs on management, budgeting, funding, accountability, and planning.

Isolation, because of the relative scarcity of similarly trained professionals, can also be a problem for rural mental health professionals. There is less opportunity for peer group interaction and supervision. The provision of decentralized continuing education and the development of linkages between the rural centers and the universities directly addresses this problem.

AHEC continuing education activities have expanded the opportunities available for mental health practitioners to meet and interact with professionals with similar responsibilities and similar problems. In one notable example, AHEC mental health staff worked with interested North Carolina clinicians to bring the 1987 National Rural Mental Health Conference to Hendersonville, North Carolina. This event provided an opportunity

Ms. Grode is Director for Mental Health Education at the Charlotte AHEC.

for participants from across the United States, Canada and New Zealand to establish relationships and share their common concerns. Research findings were presented on issues of special concern to rural mental health practitioners. In addition, attendees shared information on new and successful program models designed for rural environments.

Another example is a monthly series of seminars on Adolescent Issues held at Broughton Hospital, one of the state's four psychiatric hospitals. These events bring clinicians from the hospital together with staff from mental health centers and other psychiatric and substance abuse treatment facilities throughout the western region. These programs, held in the midst of a rural area, also utilize faculty from medical schools to increase the academic-community interaction and help overcome the feeling of isolation. Community professionals are also given the opportunity to share their expertise through featured lectures and participation on panels.

By striving to hold continuing education events throughout the state, AHEC minimizes both the amount of time required for travel and the associated expenses while maintaining access to highly qualified faculty and current information. Continuing education programs are made available to staff from all mental health centers across the state. To date, mental health programs have been held in 61 of the state's 100 counties and have involved staff from virtually all of the state's 41 Area Mental Health/Mental Retardation/Substance Abuse Programs.

The AHEC library and information services network also plays an important role, as it provides quick, easy access to the most current knowledge published in journals, textbooks, and on videotape, as well as access to computerized databases. In all activities, the AHECs work in close association with the service and training goals of the state's Division of Mental Health/Mental Retardation/Substance Abuse Services and its four regional offices.

Community Psychiatry Training

AHEC also supports clinical experiences for psychiatry residents and psychology interns in rural communities. By providing well supervised professionally satisfying experiences, it is anticipated that more mental health professionals will be attracted to practice in these areas. Such off-campus rotations have increased dramatically since 1985 when the AHEC Mental Health Initiative began. Almost one-half of the state's 41 mental health programs have participated, including those in such rural areas as Randolph, Edgecombe, Nash, and Yancey counties.

Consultation and Technical Assistance

Because it is imperative to be generalists, it is crucial for rural clinicians to have access to professionals with highly specialized knowledge. Ties established with university faculty through

the AHECs can be particularly useful. AHEC can help identify and contact the appropriate resources as well as facilitate the interaction. In one instance, AHEC facilitated a linkage between a child psychiatrist and a mental health center which had no one on staff with advanced training in pediatric issues. Regular lectures provided knowledge of treatment of difficult-to-manage young patients, while consultation on specific cases offered help in patient management and additional learning experiences. These interactions resulted in clinicians having a telephone resource who could be utilized when faced with a particularly difficult challenge. The teaching psychiatrist, in turn, became more aware of the types of problems faced by clinicians in the community mental health centers practicing with limited resources.

AHEC faculty also provide technical assistance to mental health agencies offering public education. AHEC professionals assist in needs assessments, the development of curricula, and the production of brochures and other means of promoting the programs.

The Future

The future holds many challenges for the rural mental health professional. Changing economic conditions require an emphasis on more cost-effective means of providing mental health care. Short term therapy and group therapy are increasingly utilized. Traditional training for mental health professionals has not often emphasized these therapeutic modes, but AHEC, in association with the four academic departments of psychiatry and its other academic affiliates, plans to work with clinicians to expand and enhance the range of their clinical skills.

The state's Division of Mental Health/Mental Retardation/Substance Abuse Services is putting greater emphasis on those who have been least effectively served by society or the mental health systems: the severely and persistently mentally ill. New services for this challenging population also require new skills. Providing for a full continuum of care for this group of our citizens is particularly difficult in rural areas which lack the population base to support the necessary range of agencies and services. For example, 14 of the state's 25 counties that are within a Standard Metropolitan Statistical Area have inpatient psychiatric facilities, whereas only 12 out of the 75 counties outside these areas have such facilities.

New information has exciting implications for educational programs being designed to educate mental health personnel who will provide these new services. Computerized data banks will be increasingly used to supplement the print and audio-visual materials available through the AHEC library system and other libraries. Highly specialized material will be retrieved quickly. All mental health centers in the state will have the opportunity to be directly tied into the AHEC Library and Information Services Network.

Access to these technologies is increasingly important as current manpower shortages raise issues of staff release time for

training. Computer Aided Instruction, which includes interactive videodisks, will permit learning at the mental health agency at times convenient to staff schedules. Satellite technology will be used to link multiple sites for interactive presentations. Audio and video teleconferences are increasingly available through the AHECs. These events will not take the place of more traditional conferences and seminars, which have greater potential for informal interaction, but will be a valuable supplement.

The service demands on all mental health centers are enormous. The challenge for the recruitment of professionals and support staff and for the regular upgrading of their skills are equally great. AHEC, with its highly organized linkages to academic programs, offers real opportunities for mental health agencies throughout the state to become a part of the education and training network that enhances recruiting capabilities as well as staff development capabilities. □

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Health Manpower Distribution

Several organizations, including the North Carolina AHEC Program and the North Carolina Office of Rural Health Services, have contributed greatly to the progress made in improving health manpower distribution in the state.

Figure 5 shows steady progress in the growth of physician manpower in our state's non-metropolitan counties compared to the non-metropolitan counties of the United States.

Figure 6 highlights changes in North Carolina's physician/population ratio, by county. The first map covers the years 1963-1973. The second map shows the same information for the years 1973-1983, after the creation of the statewide AHEC Program, the Office of Rural Health Services, and other health manpower programs.

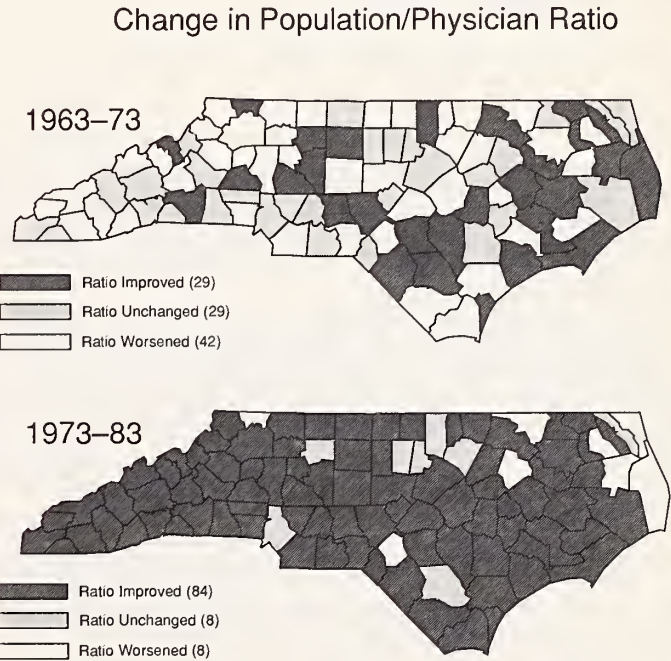
Although the ratio of physicians to population improved for 84 of the state's 100 counties from 1973-1983, Figure 7 shows there are still many areas of the state where more physicians are needed. This is especially true for 40 counties that lost primary care physicians from 1982-1987. Combining these data with the fact that medical students have begun to reject careers in primary care on a national basis, there is still a need to monitor physician distribution and to expand efforts to attract and retain physicians in rural areas.

The aging of the population and the increased prevalence of problems such as AIDS, addiction, accidents, and changes in the health care delivery system pose new challenges to the state's efforts to assure an adequate distribution of qualified health professionals. Among the issues needing immediate attention are: increased emphasis on primary care through

ambulatory based medical education; increased enrollments in nursing and allied health; retention of those health care personnel already in the workforce; continued efforts to improve the representation of minorities in all health careers; and expanded efforts to help practitioners stay up to date with new knowledge to provide the highest quality care in all counties of the state.



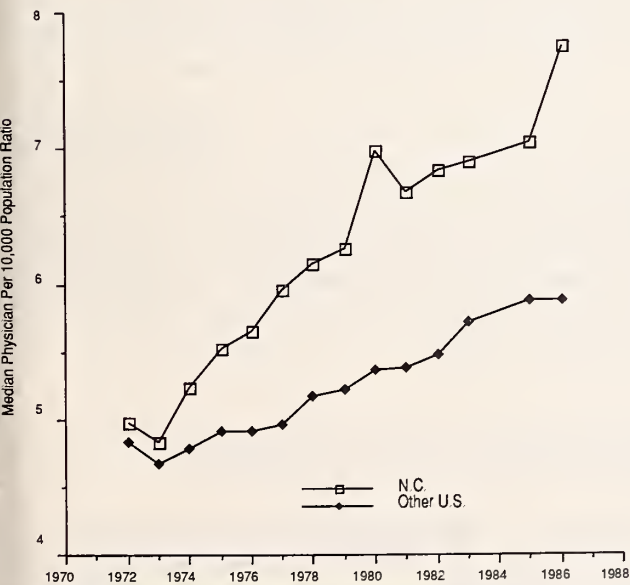
Figure 6.



Note: A population/physician ratio change of less than ± 100 is considered unchanged.

Sources:
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 NC Board of Medical Examiners files maintained by UNC Health Services Research Center
 NC State Government Statistical Abstract, Fifth Edition, 1984 and earlier editions
 NC State Board of Health, Annual Report of Public Health, Statistics Section, Part 2 (1963)
 NC State Data Center, North Carolina Municipal Population, 1983

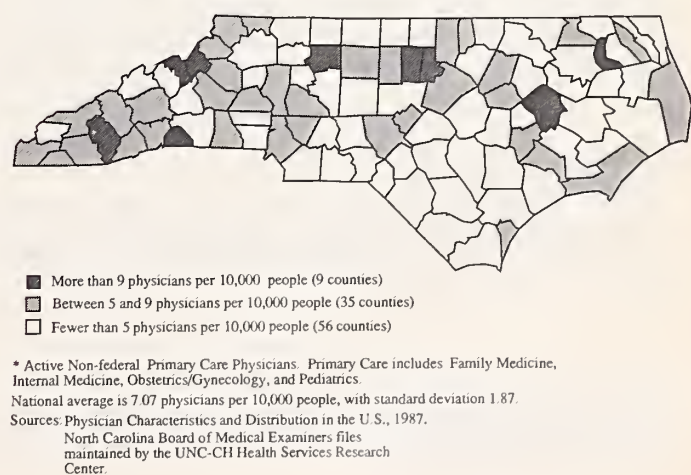
Figure 5.
Median Physician/10,000 Population Ratios
Comparison of Non-metropolitan Counties for NC and US: 1972-86



Source: U.S. Bureau of Health Professions Area Resource File, Sept. 1988
 Note: 1984 Data not available.

Figure 7.

Primary Care Physicians/10,000 Population Ratio (1988)



Health Manpower Issues Facing North Carolina and the AHEC Program

Duncan Yaggy, Ph.D.

There are few problems as stubborn or troublesome as health manpower shortages. Solving them requires a thoughtful and comprehensive approach, years of sustained effort, and a continuing investment of money.

Most of us postpone worrying about manpower problems as long as possible, in the hope they will go away. Sometimes that turns out to be a good strategy. For example, the nursing shortage of the late 1970s was "solved" with the help of inflation which compelled many nurses, then out of practice, to go back to work.

Today's shortages of physicians, nurses, and allied health professionals look more stubborn, and overcoming these shortages is likely to require considerably more than patience. But it is a challenge we must meet.

Physicians

The supply of physicians is growing faster than our population, but their distribution—whether by geography or by specialty—remains stubbornly out of balance and appears to be getting worse.

The percentage of physicians-in-training choosing primary care specialties is going down. A thoughtful working paper prepared by the North Carolina AHEC Program in 1988 suggests some of the reasons: the demands of primary care medical practice on the physician and his or her family, relatively low reimbursement for primary care services, the excessive costs that medical students incur in the course of their training, and the dramatic increase in the cost of liability insurance for physicians.

Geographic maldistribution is just as serious. When Dr. James Davis, immediate past president of the American Medi-

cal Association, launched the City of Medicine Program in Durham several years ago, he pointed with pride to the fact that the physician-to-population ratio in Durham was then five times the national average. It is probably seven times the national average now, but when I attended a family practice conference in Durham in the fall of 1988, I found 54 hospitals, mostly rural, recruiting physicians for their communities.

While there can be no question that the rising supply of physicians has increased the availability of specialists in our large and small cities, we are a long way from seeing the progress we had hoped for, and such progress as we have achieved is threatened by the turn away from primary care.

Nurses

The shortage of nurses now makes headlines and has been the subject of special legislative study in North Carolina. At a time when the demand for hospital nurses is going up, the supply is shrinking. In July, 1988, 1,442 students sat for the North Carolina RN Board Exam. This is a 14% decline in the number of students from 1987 and a 29% decline from 1985.¹ But the number of students enrolling in four-year schools of nursing is declining even faster, to the point where the continuation of several nursing education programs is threatened. Even the distinguished school at the University of North Carolina in Chapel Hill has witnessed dramatic reductions in enrollment. In partnership with North Carolina's hospitals, community colleges are moving to fill the void with new or expanded associate degree programs, but the shortage continues and beds remain closed at many hospitals.

Allied Health Professionals

The allied health professions present analogous problems. To attract college graduates with basic science training, hospital-based medical technology training programs must emphasize the extraordinary range of career opportunities open to certified

Dr. Yaggy is Director and Chief Planning Officer, Office of the Vice-President for Health Affairs, and Professor of Practice of Political Science, Duke University.

medical technologists. That strategy serves to keep programs filled, but it also serves to widen the horizons of students, who are then recruited by pharmaceutical companies, instrument manufacturers, government agencies, and a host of other enterprises outside the world of the direct delivery of health care services. These businesses offer salaries and fringe benefits better than health care facilities can afford. Other medical technology graduates are discovering that their training is a perfect springboard for higher-paying professions, like medicine and dentistry. The vacancy rate in our hospitals for these professionals continues to grow and the enrollment of students in these training programs continues to shrink.

The supply of physical therapists is rising, but the demand, in a country with a rapidly aging population, is increasing even faster. A 1986 survey conducted by the North Carolina AHEC Program showed a vacancy rate of 19% in physical therapy positions across the state. The director of Duke's training program reports that his school receives five announcements of job openings for every graduate. Here again, competition puts health care facilities at a significant disadvantage because private practice offers opportunities that are more appealing. The vacancy rate in our hospitals and other health agencies for physical therapists continues to grow even as our training programs are filled. The vacancy rate in hospitals and other health care facilities continues to rise.

Pharmacists

Pharmacists are also scarce. North Carolina graduates about 140 pharmacy students each year, and that number will grow to nearly 200 when the school at Campbell University graduates its first students in 1991. Even so, the number of vacant positions for pharmacists in North Carolina exceeds 200 right now, and that total excludes positions in private industry. Health care facilities bidding for the services of pharmacists report that they cannot match the salaries and fringe benefits offered by drug store chains and pharmaceutical companies.

Discussion

These problems are real, continuing, and getting worse. They deserve our careful attention, and the most creative thinking that we can muster. For that reason, I am glad that the North Carolina AHEC Program has made manpower needs the subject of continuing attention.

The AHEC Program deals with the very parties that must contribute to the alleviation of the manpower shortage: our academic institutions, health care service agencies, health care professionals, and government at all levels. The AHEC Program has been able to bring these parties to the table and keep them there in constructive dialogue.

All that said, the problems are still daunting. Why? There are three major factors involved: the environment, cooperation

among professionals, and the ability to generate creative solutions.

The Environment

The first factor is the environment. The place in which we work and plan is changing with extraordinary rapidity. The focus of health care is shifting quickly, from the inpatient to the outpatient setting. Despite the aging of our population, hospital utilization decreased 25% between 1982 and 1987, mainly because payers found ways to eliminate unnecessary utilization.

The reduction in hospital utilization has had powerful effects but not the ones predicted. For all the concern about discharging patients sicker and quicker, there is no evidence that morbidity and mortality are rising as a consequence. And the hospitals have not closed. Since 1982, only four North Carolina hospitals have closed. All four were in serious trouble long before 1982.

What has happened is that the demands on physicians, especially those in primary care, have increased substantially. They are now treating in their offices, in clinics, and in extended care facilities the patients that they used to hospitalize. Treating patients on an outpatient basis requires more time and more effort from the physician than treating the same patient in the hospital. We must wonder if this has not contributed to the reluctance of medical students to choose primary care specialties.

A second circumstance producing change in the environment is the extraordinary growth in our ability to prolong life and improve function. In the field of the treatment of heart disease, for example, the advances have been breathtaking. The mortality rate due to myocardial infarction has gone down 30% since 1969, and the treatment of heart disease has been revolutionized.

The third factor is the increase in health care costs. Partly because we have learned to prolong life and improve function in ways unimagined 20 years ago, we are providing more health care over a longer term, and with added costs.

Between 1982 and 1987, the rapid decline in hospital utilization masked the steady increase in the cost of treating those patients who were hospitalized. Now that hospital utilization has stopped falling so quickly, costs are increasing sharply and payers, whether governments, insurance carriers, or employers, are experiencing extraordinary increases.

At the same time, our citizens are demanding more of the health care system than ever before. It is not simply that there are more people, or that we are aging. It is also that we are more knowledgeable, more sophisticated, and more assertive. We are also better insured than ever before, and therefore feel freer to demand the best of health care.

These and other factors have conspired to accelerate the rate of change. But it is not simply the rate of change we have to worry about. It is the fact that all these forces for change are

conspiring to make our manpower problems worse:

- * The shift to outpatient care makes primary care more demanding and less attractive to physicians, but it also creates more opportunities for nurses and allied health professionals.
- * The fact that hospital patients now require more intensive services than ever before has made the work of hospital nurses more difficult and demanding, and that accelerates their departure to other settings.
- * The rate at which the new science can be applied to clinical practice has increased employment opportunities in industry for health professionals of all kinds.
- * The rise in the cost of health care makes payers less willing to pay their full cost, and the financial situation of hospitals, caught between the reluctance of payers to pay and the salary demands of the manpower marketplace, deteriorates steadily.

Cooperation Among Professionals

A second factor that makes our manpower shortage difficult is one that many would prefer to ignore. Our health manpower problems turn health professionals against one another. To get along from day to day, health professionals pretend that they all have the same goals and hopes, and that, whatever their differences, their shared determination to provide the best training and the best health care will overcome all else.

But that is not how it works. Manpower issues divide payers from providers, physicians from their hospitals, hospital administrators from their nurses, and academic institutions from their alumni. Moreover, they divide professionals from one another. If you don't think so, talk with hospital nursing administrators about the need to improve compensation and benefits for nurses entering the profession, at the expense of rewards for loyal, dedicated, and experienced nurses. Ask surgeons about the need to increase the compensation for primary care and cognitive services at the expense of physicians who perform procedures. Or ask subspecialists about the quality of care that family practitioners are capable of providing in areas that overlap their subspecialty.

Generating Creative Thinking

Dealing with manpower issues will require new ways of thinking and behaving. We like to think that crises bring out the best in us, that there is no problem we cannot solve if we are sufficiently determined. But it is a stubborn fact that crises tend to make us myopic and inflexible. As individuals, we tend to be most creative when we are confident, secure, and optimistic, and least creative and least flexible when we are threatened.

All that notwithstanding, I am optimistic. Why?

Because organizations like AHEC can give us the strength, the confidence, and the optimism which we lack as individuals

and bring us together to listen to one another, understand one another's problems, and contribute together to their solution. One example of the power of collective effort is to be found in our own backyard, in the experience of small hospitals in North Carolina over the last six years. In 1982, when the shift in hospitals was first remarked, there were predictions that 30 to 40 small hospitals in the state would soon be closed. Since then, hospital utilization has gone down 25%, but only four hospitals have closed.

Why not 40? Because with the support of the state's Office of Health Resources Development and other programs, small hospitals have transformed themselves. As their inpatient utilization has dwindled, they have expanded ambulatory care facilities, recruited physicians to use them, developed rehabilitation and wellness programs, and converted unused acute beds to long-term care. In short, they have become multi-purpose health centers.

That experience makes me optimistic, but if people within the medical profession can't feel optimistic about finding solutions to our manpower shortage, they should at least start feeling good about the problem. The manpower shortage we face is in large measure the result of two good things: the continued growth of our economy, which has sharpened competition for workers of all kinds, and the explosion of opportunities for women over the last 20 years. For generations, health care in this country benefitted from the fact that women were restricted to a small number of occupations, including nursing and the allied health professions. Now their opportunities include every field open to men, and our society and our country are better off as a result.

Dealing with our manpower shortage is going to force us to do good things. It is going to force us to find ways to bring into the health care workforce people who are now excluded, and it is going to force us to create opportunities for them to grow, develop, and to have meaningful careers.

And it is going to force us to get involved in elementary and secondary education, and to do something about the fact that North Carolina's average SAT scores are among the lowest in the nation. For too long the health care professions have said in effect, "Only the best and the brightest need apply." To deal with our manpower shortage, we are going to have to expand the pool of the best and the brightest, and that will force us to contribute to the efforts of improving education in this state.

So as we start the 1990s, and the effort to deal with our manpower problems, we should be optimistic. As individuals we may be helpless, but if we work together, we can overcome our problems and ease the manpower crisis. □

Reference

- 1 1988 North Carolina Board pass rates. Memorandum from Mark Philbrick, Oct. 27, 1988.

Letters to the Editor

Reply from Dr. Hendricks

To the Editor:

In response to the letter by Thomas F. O'Brien, Jr., M.D., (NCMJ 1989;50:584), regarding my editorial on expert medical witness testimony, I would like to point out that often more than money is exchanged when physicians agree to testify against each other. Whereas it is my impression (and hope) that most physicians (including "the great majority of academic clinical physicians") provide high quality expert medical witness testimony, there are some who do not. It is for these irresponsible physicians that strict ethical guidelines must be established.

I would also like to point out that none of the medical schools in North Carolina would reveal to me how much money they received last year as a result of expert medical witness testimony by their faculty. Why not?

William M. Hendricks, M.D.
Chairman, Department of Medicine
Randolph Hospital, Inc.
Asheboro 27203

Comments on Dr. Frazier's article

To the Editor:

I enjoyed rereading Claude Frazier's article on his cat (The Many Expressions of Sweet Thing, 50:563-5). I am sure that the article will recreate all of the feelings of those people who enjoy cats. I am sure that Claude would agree that the worst possible thing to have in the house, if you have any manifestation of allergy, is a cat.

Hyposensitization can now be achieved with some of the newer derivatives which are specific for cat saliva, nevertheless it still doesn't make any sense for people with perennial allergic rhinitis to be exposed to the cat per se, or that which the cat drags in, or stirs up inside the house.

In the interest of humane care of animals, I would plead that we do not need to condone pets of any type inside the house for those 20% in number who suffer from atopic disease.

Austin T. Hyde, Jr., M.D.
Norris Biggs Clinic, P.A.
312 S. Ridgecrest Avenue
Rutherfordton 28139

To the Editor:

I was just looking at the October issue of the North Carolina Medical Journal. I find an article by an allergist here in Asheville, Dr. Claude A. Frazier, and the name of the article is "The Many Expressions of Sweet Thing."

If I can get over my nausea and upset stomach over finding such an article in our Journal, I will express my opinion. I do not know who is in charge of printing articles for the physicians of the state of North Carolina, but I protest an article of this sort.

James M. Sloan, III, M.D.
942 Tunnel Road
Asheville 28805

Editor's reply:

I have three dogs—no cats.

"Sweet Thing" revisited

To the Editor:

I had an ad in The *Charlotte Observer* newspaper for a writer. A woman called in response to the ad. She asked, "could you tell me a little about the subject of your writing?"

I replied, "Well, for example I have Sweet Thing lying here in bed beside me."

"Click." She hung up on me.

I could only guess what must have gone through her mind. I thought everyone knew about Sweet Thing—my Himalayan cat. I guess I was wrong.

Claude A. Frazier, M.D.
Doctors Park—Bldg. 4
Asheville 28801

Praise for "Health Watch"

To the Editor:

Wow! The Health Watch for October 1989 on Sexually Transmitted Diseases (NCMJ 50:557-69) was extraordinarily well written. The facts were straight; the perspective was sound; and the style was beautifully direct and free of the pomposity that often makes medical reading a pain in the tail. Please let us know who wrote this piece. I would dearly love to have them edit my next paper.

John R. Dykers, Jr., M.D.
P.O. Box 565
Siler City 27344

The article was written by Penny Hodgson, Director of Communications, North Carolina Medical Society.

Unaccounted Hidden Costs

To the Editor:

The supervisor of the group home called yesterday to tell me that John M. had to be transferred to the local HMO as this was his insurance coverage with his new job. He was to be seen in three days.

Recently J.M.'s seizures have been acting up. He has been attending clinic more frequently to have his drug level tested and dosage adjusted. His thick record started with his birth which was premature and associated with cerebral palsy. His evaluation, childhood care, expression and case of associated eye, orthopaedic, behavioral, intellectual, and intercurrent problems including aberrant drug reactions formed this large volume. Not indicated was his comfort with the clinic staff, lab technicians, and the physicians he knows.

Finding and calling his new physician (an old friend and former resident) and summarizing his chart took some time, and I know there will be stress as he enters his new home base. I hope that things go well for John. We will miss him.

James A. Bryan II, M.D.
UNC School of Medicine
Chapel Hill 27599-7005

A peer review issue

Editor's note:

Dr. Snyder and his review panel have decided to review 100% of all medicare patients admitted to the Pungo District Hospital under the care of Dr. C.O. Boyette. Dr. Boyette sends the following to Dr. Snyder:

I received your letter of 9/27/89 and have not responded until now to allow my temperature to return to normal and also because I have continued to have extraordinary demands to care for my patients.

Dr. Snyder, you and I have discussed in detail, and you have personally witnessed the daily demands in my practice in a medically underserved area in eastern North Carolina. I also have presented the demands and limitations of my practice to the Board of Directors of Medical Review of North Carolina. On July 1, 1988, you apprised me of four Medicare admissions out of over 400 hospital admissions with quality of care concerns dating back to October, 1987. I have responded in detail to all of these cases and allegations of lack of quality of care. Two of these concerned head injuries in which I did not ship/haul elderly patients 30 to 60 miles for CT scans of the head. These were judgment decisions and follow-up of both indicated that CT scans were not necessary and that my appraisal of their condition was correct. Another was a patient who was dying with end stage heart disease whose family as well as the patient requested immediate discharge from the hospital. Even with a quality of care issue, representing only one out of every 100 Medicare admissions, you and the MRNC Board instituted intensified review. No consideration was given to the circumstances at hand and the reason CT scans were not done. Neither did you consider the correct judgment of the physician, but only penalized on what might have been as "there might have been a subdural." MRNC was wrong then in their sanction process and the history subsequent has proven your decision to be erroneous. Yet, the review occurred against a physician who had quality of care questions on only one of 100 hospital

admissions. To emphasize, CT scans were distant at 30 to 60 miles, holter monitors were then not in-house and EEGs were likewise 60 miles away.

Now comes your letter of September 27, 1989 in which you and the review panel seek to establish a "pattern" of care for Medicare patients treated by me. You refer back to October 1987 and combine all cases over the past two years in reaching your decision to review 100% of all admissions for the next 12 months. Statistics during 1988 and 1989 continue to show that quality of care issues concern only one out of every 100 admissions to Pungo District Hospital and many medical experts would not agree with decisions made by review specialists and physician consultants of MRNC. This action is appalling, lacks a basic understanding of my practice, is harassing and reflects a misdirection of Medicare guidelines. With this accusation, I submit the following documented facts:

During the period 10/01/86 through 9/30/87, I had 735 hospital admissions with 333 being Medicare. From 10/01/87 through 9/30/88, I had 669 hospital admissions with 317 Medicare admissions. During the period 10/01/88 through 9/30/89, I had 777 admissions with 359 Medicare admissions. The MRNC panel's allegations of quality of care issues represent less than 1% of Medicare admissions and over half of these charges are not factual.

More statistics for your consideration: I see over 60 patients daily, seven days per week, attend 10 plus acute care patients, care for 25 swing bed patients, see 15 emergency patients daily and provide care for 30 patients in a local rest home. Also, 1 to 3 minor or major surgeries or procedures are done daily. Literally and factually, I review hundreds of lab tests, x-ray reports and have 30 plus telephone consultations each day.

More data for your enlightenment: There are no residents, PAs or medical records personnel to review charts for my deficiencies. Larger hospitals can afford and do have multiple levels of review, but that is not the case with small rural facilities.

Over the past 20 years, I have achieved over 500 hours yearly in CME credits with papers, lectures, seminars and preceptorships while attending to all patients in need of medical attention virtually 24 hours daily and seven days weekly. Saturdays and Sundays are used for "catch up," dictations and MRNC responses, with about 25 plus emergencies as well as office hours on Saturday. The enclosure denotes CME credits amounting to one thousand hours of credits annually for the past three years.

With the above statistics, I believe that any medical professional can and could identify with the fallacies and inappropriate focus of MRNC. Our small community hospital has been under intensified review for trivial diagnostic nomenclature, swing bed admissions when criteria were uncertain and with physician admissions as above outlined. The review process has been excessively directed at Pungo District Hospital and the Medical Staff in this rural community and that must not continue.

Dr. Snyder, your allegations of a lack of understanding of fluid balance pharmacology, lack of appropriate use of CT studies and lack of knowledge in diagnostics and treatment of diabetic ketoacidosis reflects only an inadequacy in comprehension of facts and circumstances. I will at any time put my knowledge of every medical discipline on the table with you and the review panel. Such discussion would necessarily involve obstetrics, pediatrics, emergency medicine, geriatrics, trauma, endocrinology, preventive medicine, orthopedics, psychiatry, surgery, dermatology, rehabilitation, neurology, neurosurgery, public health and whatever else in total patient care. I doubt that any of you could provide or would provide such comprehensive care under prevailing circumstances.

Now for the clincher, MRNC should and must work towards improved patient care and must implement Medicare guidelines as regards reasonable standards of care. MRNC must not continue to be overly dictatorial, threatening and present a lack of understanding for those serving Medicare patients under these conditions. Small and rural hospitals and doctors in such areas must not be subjected to excessive review, intolerable criteria and unreasonable expectations. Every patient seen in the setting in which I practice has three or more severe medical problems which would normally require three or more specialists. MRNC is currently misdirected in focus and goal and that must be and will be changed. MRNC is in essence punishing those hospitals and doctors who provide most care for Medicare Patients under present guidelines and policies. This must be changed!

Dr. Snyder, I am aware of your responsibilities and those of the Board of Directors of MRNC, being an elected member of that board. I also am a former member of the NCMS PRO Committee and identify strongly with many of their concerns. If Peer Review is to work in North Carolina, our efforts must be tangentially redirected to assist doctors rather than joining the bureaucracy to destroy them. We are already faced with escalating deficiencies in primary care physicians in medically underserved areas and dictums imposed by you as Medical Director of MRNC and the Review Panel are damaging those doctors, who in every sense are providing the majority of care for this patient group, by over implementation of federal guidelines.

I am available at any moment for your comments. Common sense somehow must prevail, for Peer Review was not meant to be what you and the Review Panels have interpreted it to be.

Charles O. Boyette, M.D.

Chief of Staff, Pungo District Hospital

Past President, NC Academy of Family Physicians

Mayor, Town of Belhaven

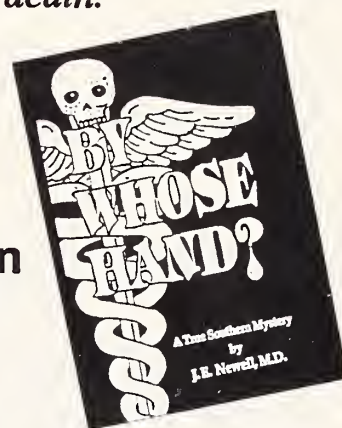
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Info: Southern Medical Association, 35 Lakeshore Drive, P.O. Box 190088, Birmingham, AL 35219. 1-800/423-4992

January 19

Neurology Day - Parkinsons Disease and Other Disorders of Movement and Cognition

Place: Greenville

Credit: 6.5 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

January 21-24

Environmental Change and Public Health

Place: Chapel Hill

Info: Annette Parker, Office of CME, UNC School of Public Health, CB#8165, Miller Hall, Chapel Hill 27599-8165. 919/966-4032

February 1,2

BCLS Instructor Course

Place: Raleigh

Credits: 12 hours AAFP

Fee: \$75

Info: Helen Creech, R.N., Course Coordinator, Rex Hospital, 4420 Lake Boone Trail, Raleigh 27607. 919/783-3161

February 1-3, 1990

Geriatric Update

Place: Research Triangle Park

Credit: TBA

Info: Office of CME, UNC School of Medicine, CB #7000, 231 MacNider Building, Chapel Hill 27599-7000. 919/962-2118

February 9

Current Issues in Psychiatric Medicine

Place: Greenville

Credit: 6 hours Category I AMA

Info: Mary C. Valand, Office of Continuing Medical Education, Box 7224, Greenville 27835-7224. 919/551-5200

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Place: Durham

Fee: \$10

Info: Geriatric Education Center, Box 3003, DUMC, Durham 27710. 919/684-5149

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Bulletin

NORTH CAROLINA MEDICAL SOCIETY

These policies affect you

Many matters of long-lasting significance come from the North Carolina Medical Society's Annual Meeting each year. Of prime importance, of course, are the elections of officers, councilors and vice-councilors (see election results on page 6).

Other actions that have significant effects on the future of the Medical Society are those that decide the fate of the many reports and resolutions that are adopted or rejected by the House of Delegates on the Saturday that closes Annual Meeting. Those that are adopted become the policy of the North Carolina Medical Society and while you, personally, are not obliged to agree with each and every one, you cannot represent the Medical Society while speaking against them.

The following article outlines some of the new policies adopted during the NCMS Annual Meeting November 8-11.

On death with dignity

Media attention to this issue was very strong and coverage extensive, and interest among Medical Society members and the public (especially attorneys and nurses) was surprisingly intense in the days following the adoption of the new policy. That policy essentially redefines the term "extraordinary means," which is used in the Right to a Natural Death

Act, to include the withdrawal of hydration and nutrition. The crucial two sentences of the policy read as follows: "It is our policy to provide service to dying patients in the most sensitive and humane manner prudent under the circumstances. When consistent with this policy, it is ethical to withhold artificial hydration and nutrition."

The hoped-for next step for this policy is its adoption by the North Carolina Hospital Association, which will give patients, their physicians and their hospitals a single instrument upon which all have agreed that deals with the very delicate issue of dying a dignified death.

Human immunodeficiency virus

Three reports and ten resolutions were introduced about HIV and AIDS. One resolution to permit testing of infants and children without parental consent when necessary was filed because such legislation — which had the support of the NCMS — has already been enacted. A report that was adopted recommended that physicians encourage their patients needing invasive procedures to have an HIV test. It also seeks appropriate rules, regulations and/or legislation to require HIV positive persons and patients with AIDS to divulge their status to their healthcare providers. Another successful report formalized the Medical Society's previously publicized stand on anti-discrimination legislation for persons with (See Policies page 2)

A supplement
to the
*North Carolina
Medical Journal.*

Policies

(Continued from page 1)

AIDS and HIV infection. The remaining proposed actions were combined into one report — which was adopted — which stressed the need for education, testing and treatment.

A separate article in this issue of the *Bulletin* (see page 4) outlines the decisions of the North Carolina Commission for Health Services regarding the specifics of legislatively-mandated reporting of HIV positivity. The Commission's meeting also took place at the Grove Park Inn last month, and decisions were effected about implementing the AIDS anti-discrimination law enacted during the last session of the General Assembly.

Jury duty

A resolution that sought to eliminate inconsistencies in the service of jury duty by physicians was introduced by the Section on Family Practice. Following Reference Committee testimony it was significantly amended and, when presented to the House of Delegates, was endorsed by its sponsor and passed unanimously. The new policy endorses service on juries by physicians "whenever possible and consistent with the provision of good patient care" and requests considerate, equitable treatment by those involved in jury selection for physicians "faced with acute medical emergencies."

The question of jury duty by physicians has also been placed on the agenda of a forthcoming meeting of a committee of the Bar Association and Medical Society.

Tobacco

A gentle easing into becoming smoke-free over the next few years became a not-so-gentle jolt when the House of Delegates amended a resolution concerning healthcare facilities and smoking. Introduced by physicians from Greensboro and High Point, the resolution originally proposed that the medical community (including hospitals and medical schools) "make efforts toward" becoming smoke-free by 1992 and that members prohibit the use of tobacco products in their offices. Following Reference Committee testimony, the prohibition of smoking in physicians' offices had been softened; members were to be "encouraged to make efforts toward having smoke-free offices by 1992."

In an unusual action, the pendulum swung back and the House endorsed more stringent wording than recommended by the Reference Committee. The policy now reads:

"That the North Carolina Medical Society recommend that hospitals, other healthcare institutions and educational institutions (including medical schools) in the State of North Carolina **become** smoke-free institutions by 1992;

"That North Carolina Medical Society physician members **provide** smoke-free offices by 1992."

Licensing boards

Proposed legislation to establish new licensing boards to govern specific allied healthcare practitioners is often submitted to the General Assembly to the dismay of many physicians in the North Carolina (See Policies page 3)

Bulletin

is published monthly by the North Carolina Medical Society as a supplement to the *North Carolina Medical Journal*. Reader comments and suggestions are welcome and should be directed to Editor, *Bulletin*, North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611, (800) 722-1350, FAX (919) 833-2023

Policies

(Continued from page 2)

Medical Society. Many members feel that such boards, while doing little if anything to ensure the quality of care by their licensees, drive up the costs of medical care and permit changes in practice through a political process rather than through demonstrated competence and training. A report and a resolution on this subject came before the House and, once passed, gave the Governmental Affairs staff the guidance they felt they needed on this issue.

It is now the Medical Society's policy to "oppose legislation establishing new healthcare licensing boards unless the proponents of such legislation convincingly demonstrate" it is needed to protect the public's health, safety or welfare. The policy supports the possible use of certification or registration for demonstrating competence in an allied health professional.

Physician ownership

A ten-year-old policy of the NCMS on ownership of optical shops by ophthalmologists came under scrutiny in 1989. A new, more general policy on ownership of healthcare entities by physicians was proposed and adopted by the House.

That new policy says that physicians may have a financial interest in a business entity to which they refer their patients for care; that they should clearly distinguish between their patient care responsibilities and their business interests; and that they should inform their patients of such affiliations and give them an opportunity to choose an alternate entity for treatment or services if they wish.

Membership matters

Several new policies concerning membership also were submitted to the House of Delegates and became policy. In one action (effective January 1, 1991) the House permitted student members cut-rate dues if they opted to pay for four, three or two years of membership at once. Another directed the Nominating Committee to consider medical students, residents and young physicians for the AMA delegation. Yet another report created a category of membership ("conditional") for physicians whose applications for membership in the NCMS are in process within component medical societies. Such members will have all rights and privileges except the rights to vote and hold office, and conditional memberships will last no longer than one year.

Questionable prescriptions

The North Carolina Medical Society has two new policies regarding prescribing patterns of members and another that seeks to protect the prescription process. One policy discourages the use of anorectics for weight control; another declares the prescribing of anabolic steroids to enhance athletic ability "entirely inappropriate," seeks legislation or administrative rules to prohibit such prescribing practices and supports efforts to educate appropriate audiences about the dangers of anabolic steroids. In another action the House of Delegates endorsed the American Medical Association's PADS II Program, a computerized system to track prescription drug diversion.

Communicable disease regs

During a meeting held in conjunction with the NCMS Annual Meeting in Asheville, the NC Commission for Health Services recently adopted rules making human immunodeficiency virus (HIV) infection a reportable communicable condition.

Anonymous testing will continue to be available at all 100 county health departments, which are required to report only positive results and epidemiologic information on anonymous tests. All positive tests **not conducted anonymously** by a local health department will be reportable with names and other identifying information.

The new regulations are scheduled to go into effect on February 1, 1990, but the Administrative Rules Review Commission must first review them.

The rules state that confirmed HIV positivity must be reported to the local health director within seven days; confirmed HIV is defined as a positive virus culture; repeatedly reactive ELISA antibody test confirmed by Western blot or indirect immunofluorescent antibody test; or other confirmed testing method approved by the Director of the State Public Health Laboratory conducted on or after February 1, 1990.

Confirmed HIV infection identified by anonymous tests that are conducted at local health departments are to be reported on forms provided by the Division for that purpose. No communicable disease report card is required.

In other action, the Commission adopted detailed control measures for

hepatitis B infection but delayed adoption of proposed medical waste disposal requirements. The Medical Society had expressed concerns about how the medical waste rules might affect smaller medical practices and requested further study of the proposals.

To request a copy of the new HIV and hepatitis B requirements, call the Communicable Disease Section at (919) 733-3419.

HIV counseling tape available

To train physicians to counsel patients about the human immunodeficiency virus (HIV), the AMA's Division of Health Science has produced written guidelines and a training video. "HIV Blood Testing Counseling" was produced with the input of nationally recognized experts in HIV disease. It portrays a family physician's interactions with three patients during pretest and posttest counseling, drug and sexual practices history-taking and education about HIV.

Copies of the guidelines and the training video are now available from the North Carolina Medical Society through the Sexually Transmitted Diseases and AIDS Speakers' Bureau. To request the materials, call Susan Ford at (800) 722-1350.



Raleigh —

Audiology rule change

Recent action by the NC Administrative Rules Review Commission, the governmental body that reviews all rules established by state agencies, has resulted in a licensure requirement for audiologists working in offices of otolaryngologists. The Commission repealed a long-standing rule of the North Carolina State Hearing Aid Dealers and Fitters Board which exempted from licensure audiologists who are employees of otolaryngologists and who are engaged in the fitting and selling of hearing aids.

Even though this rule had been in force for the past eight years, the Commission found that the Board did not have statutory authority to exempt audiologists working in this capacity. As a result of the Commission's action, audiologists who had previously been exempted will now have to pass an examination and be licensed by the Board. The Medical Society's Legislation Committee is expected to address this issue at its March 1990 meeting in Pinehurst.

To receive further information on what is required by the repealing of this rule, contact Ms. Judy Bedsaul, Executive Secretary, NC State Hearing Aid Dealers and Fitters Board at (919) 766-5255.

Malpractice Commission members appointed

The thirteen members of the Medical Malpractice Claims Arbitration Study Commission have been appointed by House Speaker Joe Mavretic and Senate President Pro Tempore Henson P. Barnes. The Commission, which will study the use of court-ordered arbitration in medical malpractice actions as well as other alternate methods for resolving disputes, has two physician members: Dale Newton, MD, an internist/pediatrician from Tarboro, who was appointed by Speaker Mavretic and Christopher Bremer, MD, a family practitioner from Greenville, who was named by Senator Barnes.

The other members of the Commission are: Rep. George Miller (D-Durham), Rep. Charles Cromer (R-Thomasville), Rep. George Robinson (R-Lenoir), Sen. Sandy Sands (D-Reidsville), Sen. R. C. Soles (D-Tabor City), Sen. Joe Johnson (D-Raleigh), Superior Court Judge Robert H. Hobgood, NC Court of Appeals Chief Judge Robert Alfred Hedrick or designee, Deputy Attorney General Ann Reed, and at-large members Billy Ray West and Richard R. Grady. The Commission is expected to begin its work during the first part of December.

1989-90 NCMS Officers

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Health Care Leadership

The Institute for Health Care Leadership had its annual seminar on October 19-21 at the Grove Park Inn in Asheville. The program was well attended by physicians, trustees and administrators from around the state who were treated to a variety of nationally recognized speakers from law, medicine, administration and government.

One highlight was an address by Gail R. Wilensky, PhD, who is expected to be the new Chief of the Health Care Financing Administration (HCFA). Her address was on public policy issues facing healthcare leaders. She presented the congressional mandates facing physicians regarding health care in the future as well as comments about physician payment reform and governmental moves towards a moderation of healthcare growth and cost. Dr. Wilensky comes from a medical family and is married to a physician.

Other speakers of national note were B. J. Anderson, Special Counsel for the AMA; a former chairman of a national oil company; a philosopher from Davidson College; and an administrator from Columbia, SC. They presented issues involved in ethics, resource allocation and healthcare leadership.

Saturday was a day of emphasis on physicians. Attendees first heard an address by Bryant Galusha, MD, the recently retired Executive Vice-President of the Federation of State Medical Boards of the United States. There was also a panel on health care for the poor. Panel members included W. T. Williams, Jr, MD,

Director of the Charlotte AHEC; James E. Davis, MD, immediate past president of the AMA; and Karen Brigham, manager of healthcare policy for the United States Chamber of Commerce.

Tourney champs

The 1989 NCMS Annual Meeting included golf and tennis tournaments. Results of golf (sponsored by CIBA Pharmaceuticals and Glaxo Pharmaceuticals) and tennis (sponsored by Premier Capital, Inc.) are:

Golf

1st Place (Net 64) — Arthur Bolz,
Jimmie Rhyne, Robert Surratt, Jeff Lam
2nd Place (Net 65) — Carl Fisher, Bob
Alsup, Robert Lester, I.W. Chung
Longest Drive, Men — Doug Lam
Longest Drive, Ladies — Elise Weinrich
Closest-to-the-Pin — Gray Hall
Most Accurate Drive — Louis Wilkerson
Longest Putt — Weldon Joyce

Tennis

1st Place, Men — Kenneth Wilkins, Jr.
2nd Place, Men — Kenneth Weeks
1st Place, Ladies — Beck Weeks
2nd Place, Ladies — Sarah Nettles

Prizes were presented to the winners at the President's Dinner on Friday evening, November 10.

President's message



T. Reginald Harris
T. Reginald Harris, MD
President

For the past 141 years, men and one woman have led and shaped this organization, each bringing special talents and qualities, and all sharing a common dedication to their profession. Whatever I may have to offer, you may be certain that I will give it in full measure and in gratitude for the opportunity to serve you.

One of my concerns I want to share with you in my first message: the growing disarray of our profession. At every hand we see evidence of an increasingly divided house. Disunity and fragmentation abound. The driving forces of this phenomenon are largely external, having to do with the politics of limited resources, a changing socioeconomic environment and increasingly complex regulatory systems. Their impact exerts tremendous influence on our responses as a profession. We instinctively respond as an individual, or as a specialist, or as a practitioner in an urban or rural setting, or as a medical academician or in whatever way these pressures affect us personally. This is perfectly understandable, but you may be certain that these responses do not go unnoticed by those organizations and individuals who shape the laws and policies that govern how, when, on whom, in what setting and at what price we deliver health care to our patients.

When we deal with these issues without regard for the overall welfare of our profession, we become ever more vulnerable to assaults. Divide and conquer becomes the tactic. A house divided is a house without direction and without strength. Those who would tell us what is best for our patients are strong. Those who set health policy and the middlemen who manage payment systems and those who provide financing and those who

review our services are committed to their own purposes. Their goals and programs are set in the halls of government and in the nation's board rooms. Their motivations are not always to the delivery of quality medical care. Today there are initiatives under way that, if successful, will change the face of medicine in this nation in ways that would make it unrecognizable to the generations of physicians who preceded us.

If we are to reverse this process and have a voice at the conference table, we must come together as a profession.

Our Planning Council paid a good bit of attention this year to ways the Society can provide forums for consensus. One way is of particular importance — to expand the role of specialty societies within the North Carolina Medical Society. Implementation guidelines adopted by the House of Delegates in Asheville include seating a delegate and alternate for each specialty society in the House of Delegates, in addition to or in lieu of present specialty section representatives; expanding the composition and the scope of activities of the Coordinating Council of Specialty Societies, which is already doing an excellent job, and extending voting privileges to its chairman on the Executive Council; utilizing the Coordinating Council as a forum for addressing issues between and among specialties; and assuring that all committees of the Society have appropriate representation from the specialties.

Let us be enthusiastic participants in providing quality, cost-effective, compassionate care to our patients. Let us be willing to work in collaborative efforts with others who can help us without sacrifice of professional and scientific integrity.

Electronic claims

Recently, many of you received a Medicaid Bulletin which contained an article on Medicaid's Electronic Claims Submission (ECS) system. ECS is one means now available to help you in filing error-free claims with Medicaid.

Medicaid provides a **free** software package that will operate on any IBM-compatible PC. This package automatically edits claims during data entry so your claims can be corrected prior to submission. ECS is reportedly days faster in processing claims so providers using the system are generally paid sooner than those using a "hard copy" system. If you are interested in obtaining the free ECS

package or scheduling a demonstration/training session, you can reach an ECS representative by calling (800) 366-3373.

While you may be interested in checking into ECS specifically, remember that MPS, the electronic billing service which is endorsed by both the AMA and the North Carolina Medical Society, has provided a way to file Medicaid claims electronically since July 1987. MPS also provides for paperless billing to BC/BS, NC Medicare (Equicor), workman's compensation and most private carriers.

For more information on MPS, call (800) 422-0213.

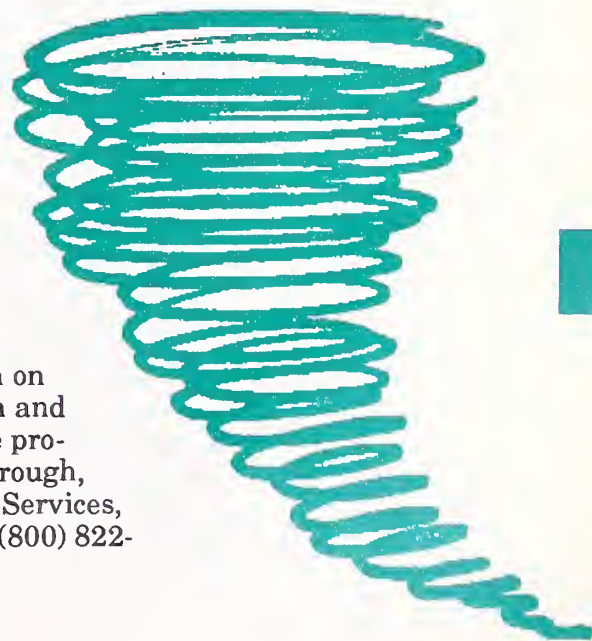
Natural disasters and your practice

Hurricane Hugo — like the tornado in Winston-Salem this spring — interrupted physicians' practices for more than a week due to downed power lines. The typical business-owner's policy does not cover losses incurred through a power interruption that occurs away from the practice location; however, the Medical Society-endorsed Physician SecurePlan does provide protection for both business interruption and loss of equipment or supplies caused by off-premises power interruption.

After an initial 24-hour waiting period,

the SecurePlan covers actual losses sustained from business interruption for up to two weeks; most plans have daily limits.

For more information on the Physician SecurePlan and other endorsed insurance programs, call Richard Yarbrough, CPCU, MMIC Insurance Services, Inc. at (919) 828-9336 or (800) 822-6561.



The Data Bank is coming!

Final regulations for the National Practitioner Data Bank, published recently in the *Federal Register*, set forth criteria and procedures for the collection and dissemination of Data Bank information. The effective date for the Data Bank is not clear but we expect it to be approximately April 1990.

Wade through what follows because it is crucial to you. It is as clear and simple as we can make it.

Reporting requirements **Malpractice payments**

Q: Who must report?

A: Any person or entity, including an insurance company, which makes a payment under an insurance policy to settle or satisfy a claim or a judgment for medical malpractice.

Q: What information must be reported?

A: Identifying information (name, address, etc.); the physician's license number, field of licensure, and state where the license is held; DEA number; the hospital with which the physician is affiliated.

Where an action or claim has been filed with an adjudicative body: identification of the adjudicative body and the case number; date or dates on which the act(s) or omission(s) occurred; date of judgment or settlement; amount paid, date of payment, and whether payment is for a judgment or a settlement; description and amount of judgment or settlement and any attached conditions, including terms of payment; a description of the acts, omissions, injuries or illnesses upon which the action or claim was based.

Licensure actions

Q: What actions must be reported?

A: Any action based on professional competence or conduct which revokes or suspends (or otherwise restricts) a license; which censures, reprimands, or places a physician on probation; or under which a license is surrendered.

Q: What information must be reported?

A: Identifying information; the license number; the field of licensure and the state where the license is held; the DEA registration number; a description of the acts or omissions or other reasons for the action taken; a description of the Board action, the date the action was taken and its effective date.

Clinical privileges actions

Q: Who must report and what actions must be reported?

A: Each healthcare entity must report to the Board of Medical Examiners the following actions: any professional review action that adversely affects clinical privileges for longer than 30 days; acceptance of the surrender of clinical privileges or any restriction of such privileges while the person is under investigation for possible incompetence or improper professional conduct, or in return for not conducting such an investigation or proceeding; or in the case of a professional society, when it takes a professional review action.

Q: What information must be reported?

A: Identifying information; the license number, the field of licensure, and the

state in which the license is held; DEA registration number; a description of the acts or omissions or other reasons for privilege loss or surrender; action taken, date taken and effective date of the action.

Each Board of Medical Examiners must report the information reported to it by a healthcare entity and any known instances of a healthcare entity's failure to report information as required.

Disclosure requirements

Q: Who must request information from the Data Bank?

A: Each hospital must request information as follows: at the time a healthcare practitioner applies for a position on its medical staff (courtesy or otherwise) or for clinical privileges at the hospital; every two years concerning any healthcare practitioner who is on its medical staff (courtesy or otherwise) or has clinical privileges at the hospital.

Q: Who else may request information from the Data Bank?

A: Hospitals that request information concerning a healthcare practitioner who is on its medical staff (courtesy or otherwise) or has clinical privileges at the hospital; a healthcare practitioner concerning himself or herself; Boards of Medical Examiners or other state licensing boards; healthcare entities with employment or affiliation relationships with healthcare practitioners who have applied for clinical privileges or appointment to the medical staff; an attorney who has filed a medical malpractice action or claim against a hospital and who requests information regarding a specific healthcare practitioner who is also named in the action or claim (this information will be disclosed only if the hospital failed to request it from the Data Bank as required, and may be used

solely with respect to litigation resulting from the action or claim against the hospital); a healthcare entity with respect to professional review activity; a person or entity who requests information in a form which does not permit the identification of any particular healthcare entity or healthcare practitioner.

Disputing procedures

Q: Who may dispute Data Bank information?

A: Any healthcare practitioner may dispute the accuracy of information concerning himself or herself. The Secretary will routinely mail a copy of any report filed in the Data Bank to the individual.

Q: What is the procedure for filing a dispute?

A: A healthcare practitioner has 60 days from the date on which the Secretary mails the report in which to dispute its accuracy. Inform the Secretary and the reporting entity, in writing, of the disagreement and the basis for it; request simultaneously that the disputed information be entered into a "disputed" status and be reported to inquirers as being "disputed"; enter into a discussion with the reporting entity to resolve the dispute.

Q: What is the procedure for revising disputed information?

A: If the reporting entity revises the information originally submitted to the Data Bank, the Secretary will notify all entities to whom reports have been sent that the original information has been revised. If the reporting entity does not revise the reported information, the Secretary will, upon request, review the written information submitted by both parties.

Medicare: to participate or not?

Equicor, North Carolina's Medicare carrier, will send out participation enrollment letters for 1990 as soon as they receive final instructions from HCFA. The letters usually go out in December and the deadline for a decision is usually December 31. This year the whole process **may be delayed**. Watch for your participation letter and consider the information carefully before making your decision.

The chart on the facing page simply outlines the three choices you face. In order to make an informed decision, you need:

1. your customary charges
2. prevailing charges for participating and non-participating physicians
3. your maximum allowable actual charges (MAAC) for 1990

These resources are provided by Equicor. If you do not have the information you need, contact Professional Support Services, PO Box 671, Nashville, TN 37202. The best thing to do is to go through each example with several procedures that you do frequently and determine which choice makes sense for your practice.

In addition to the differences in reimbursement, you may also want to consider the percentage of your practice represented by Medicare patients and your patients' payment history. Consider that Medicare pays the **patient** if a physician does not participate **and** does not accept assignment and then you must collect from the patient.

Several non-economic factors are important in the participation decision. These factors are outlined in Equicor's participation letter and include the fact that physicians have their names listed in a directory of participating physicians and a toll-free phone referral service if they decide to participate. Also, Medicare informs patients of the participation program on explanation of benefit letters for unassigned claims.



Participating

Accepts Assignment — Physician agrees to bill Medicare directly and accept Medicare's allowable (customary, prevailing, or actual, whichever is less) as full charge

Physician Receives: 80% from Medicare — 20% from patient

Example: Physician's charge = \$130.00
Medicare's allowable = \$100.00
Medicare pays physician = \$80.00
Patient pays = \$20.00
Physician adjusts \$30.00 (\$130.00 — \$100.00)

Non-participating

Accepts Assignment — Physician agrees to bill Medicare directly and accept Medicare's allowable (95.5% of participating physician's customary, prevailing, or actual, whichever is less)

Physician Receives: 80% from Medicare — 20% from patient

Example: Physician's charge = \$130.00
Medicare's allowable = \$95.50
Medicare pays physician = \$76.40 (80% of allowable)
Patient pays = \$19.10 (20% of allowable)
Physician adjusts \$34.50 (\$130.00 — \$95.50)

Does Not Accept Assignment — Physician's **charge** is limited to MAAC (maximum allowable actual charge) *
Medicare reimburses **patient** 80% of non-participating allowable (customary, prevailing or actual, whichever is less)
Patient responsible for balance **up to MAAC**

Physician Receives: 0% directly from Medicare (Medicare reimburses **patient**)
100% from patient

Example: Physician's **Medicare** charge is limited to MAAC = \$90.00
Non-participating allowable (customary, prevailing or actual) = \$80.00
Medicare reimburses patient 80% of \$80.00 = \$64.00
Patient responsible for balance **up to MAAC** \$26.00 (\$90.00 — \$64.00)

* Available from Professional Support Services
Equicor - Medicare, PO Box 671, Nashville, TN 37202

But we all bill that way!

"But We All Bill That Way!" was a recent article in *Medical Economics* that caused a mild panic among physicians who bill for coverage provided by a colleague. To clarify the issue we asked our legal counsel to look at the common billing practice where physician A bills and receives payment from Medicare or Medicaid for services provided by physician B. Technically, the rule is: If you don't provide the service, don't bill for it.

In 1981, Congress passed the Civil Money Penalties Law to curb fraud and abuse in the Medicare and Medicaid programs. The law states that if a person presents a claim for medical services that the person knows or should have known was not provided as claimed, he or she shall be subject to a civil money penalty of not more than \$2,000 for each item or service, an assessment of not more than twice the amount claimed for each item or service and possible exclusion from the Medicare and Medicaid programs. In addition to these civil penalties, the person could also be subject to criminal proceedings if the violation was willful.

A physician presenting a claim for payment for services provided by another physician — whether a member of his or her group or not — could be construed as violating the law in that the physician technically is presenting a claim that he or she knows or should know was not provided as claimed.

As a practical matter this billing practice would seem to be of minor interest to Medicare and Medicaid officers who must pursue practices such as double billing, over-utilization, "kickbacks," etc. However, until the law

is changed, physicians cannot rest assured that such billing practices will not be challenged.

The Georgia Medical Society will present a resolution at the AMA's Interim Meeting in December asking that the AMA pursue the repeal of laws prohibiting billing for care provided by a colleague in a coverage situation. Our delegates will be present to support that action.

IC System

IC System, the Society-endorsed debt collection agency, has notified us of a recent U.S. Court of Appeals decision under the Fair Debt Collection Practice Act. Under the ruling, collection agencies are required to give a debtor 30 days to dispute the validity of his or her debt. IC System is concerned that some debtors will interpret the court ruling as prohibiting any collection activity within the 30 day period.

The ruling will not materially change the manner in which IC System collects debts. The company continues to encourage all of its clients to submit delinquent accounts in a timely manner. For example, if you currently turn accounts over to your collection agency at 120 days past due, consider moving it up to 90. If you turn them over at 90, try 60 days. Also, be sure to include your record of the debtor's telephone number, which may be new or unlisted.

If you have questions regarding this court ruling or about how you can speed the collection of your accounts, you can call IC System's Client Services Department at (800) 328-9595.

Calendar ...

- January 4** **Medical Review of North Carolina** will present a data profile of the outcomes of MRNC review followed by a panel discussion at the Holiday Inn, Goldsboro from 10am-1pm. Physicians wishing to attend should register via their hospital's PRO contact or Carla Elam at (800) 682-2650 no later than December 13th.
- January 10** **Health Hotline**, WRAL-TV, Raleigh
- January 27** **Health Hotline**, WSOC-TV, Charlotte
- March 28-31** **NCMS 1990 Spring Conference** will be held at the Pinehurst Hotel in Pinehurst.
- July 6-8** **NCMS 1990 Sports Medicine Symposium** will be held at the Shell Island Resort and Convention Center at Wrightsville Beach.
- November 7-10** **NCMS 1990 Annual Meeting** will be held at the Pinehurst Hotel in Pinehurst.
-

1990 Practice management seminars

The Medical Society is continuing its successful series of practice management seminars. The seminars, which are co-sponsored with the AMA, received excellent evaluations from physicians and medical office staff who attended them during the past year.

The workshops currently scheduled for 1990 are listed below. Additional information regarding registration and hotel arrangements for the workshops will be distributed as inserts in future issues of the *Bulletin*.

Workshops for Medical Office Staff - Charlotte

- April 24** Insurance Processing and Coding for the Medical Office
April 25 ICD-9 Coding for Doctors' Offices
April 26 Advanced CPT-4 Coding
April 26 Medical Collections Management
April 27 The Business Side of Medicine

Workshops for Young Physicians - Raleigh

- June 7** Joining a Partnership or Group Practice
June 8 - 9 Starting Your Practice

Workshops for Established Physicians - Pinehurst

- November 11** Gearing Up for Retirement

The North Carolina Medical Society appreciates these sponsors of our 1989 Annual Meeting:

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VASOTEC[®]

(ENALAPRIL MALEATE) MSD

VASOTEC is available in 2.5-mg, 5-mg, 10-mg, and 20-mg tablet strengths.

Contraindications: VASOTEC[®] (Enalapril Maleate, MSO) is contraindicated in patients who are hypersensitive to this product and in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

Warnings: *Angioedema:* Angioedema of the face, extremities, lips, tongue, glottis, and/or larynx has been reported in patients treated with ACE inhibitors, including VASOTEC. In such cases, VASOTEC should be promptly discontinued and the patient carefully observed until the swelling disappears. In instances where swelling has been confined to the face and lips, the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. **Where there is involvement of the tongue, glottis, or larynx likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL), should be promptly administered.** (See ADVERSE REACTIONS.)

Hypotension: Excessive hypotension is rare in uncomplicated hypertensive patients treated with VASOTEC alone. Heart failure patients given VASOTEC commonly have some reduction in blood pressure, especially with the first dose, but discontinuation of therapy for continuing symptomatic hypotension usually is not necessary when dosing instructions are followed; caution should be observed when initiating therapy. (See DOSAGE AND ADMINISTRATION.) Patients at risk for excessive hypotension, sometimes associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death, include those with the following conditions or characteristics: heart failure, hyponatremia, high-dose diuretic therapy, recent intensive diuresis or increase in diuretic dose, renal dialysis, or severe volume and/or salt depletion of any etiology. It may be advisable to eliminate the diuretic (except in heart failure patients), reduce the diuretic dose, or increase salt intake cautiously before initiating therapy with VASOTEC in patients at risk for excessive hypotension who are able to tolerate such adjustments. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.) In patients at risk for excessive hypotension, therapy should be started under very close medical supervision and such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart disease or cardiovascular disease in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident. If excessive hypotension occurs, the patient should be placed in supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses of VASOTEC, which usually can be given without difficulty once the blood pressure has stabilized. If symptomatic hypotension develops, a dose reduction or discontinuation of VASOTEC or concomitant diuretic may be necessary.

Neutropenia/Agranulocytosis: Another ACE inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment, especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Foreign marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Precautions: *General:* **Impaired Renal Function:** As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with ACE inhibitors, including VASOTEC, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20% of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients, renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent preexisting renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when VASOTEC has been given concomitantly with a diuretic. This is more likely to occur in patients with preexisting renal impairment. Dosage reduction and/or discontinuation of the diuretic and/or VASOTEC may be required.

Evaluation of patients with hypertension or heart failure should always include assessment of renal function. (See DOSAGE AND ADMINISTRATION.)

Hyperkalemia: Elevated serum potassium (> 5.7 mEq/L) was observed in approximately 1% of hypertensive patients in clinical trials. In most cases these were isolated values which resolved despite continued therapy. Hyperkalemia was a cause of discontinuation of therapy in 0.28% of hypertensive patients. In clinical trials in heart failure, hyperkalemia was observed in 3.8% of patients, but was not a cause for discontinuation.

Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements, and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with VASOTEC. (See Drug Interactions.)

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Information for Patients:

Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

NOTE: As with many other drugs, certain advice to patients being treated with enalapril is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions:

Hypotension: Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide close medical supervision after the initial dose for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and DOSAGE AND ADMINISTRATION.)

Agents Causing Renin Release: The antihypertensive effect of VASOTEC is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: VASOTEC has been used concomitantly with beta-adrenergic-blocking agents, methylglucoside, nitrates, calcium-blocking agents, hydralazine, prazosin, and digoxin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: VASOTEC attenuates potassium loss caused by thiazide-type diuretics. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia, they should be used with caution and with frequent monitoring of serum potassium. Potassium-sparing agents should generally not be used in patients with heart failure receiving VASOTEC.

Lithium: A few cases of lithium toxicity have been reported in patients receiving concomitant VASOTEC and lithium and were reversible upon discontinuation of both drugs. Although a causal relationship has not been established, it is recommended that caution be exercised when lithium is used concomitantly with VASOTEC and serum lithium levels should be monitored frequently.

Pregnancy—Category C: There was no fetotoxicity or teratogenicity in rats treated with up to 200 mg/kg/day of enalapril (333 times the maximum human dose). Fetotoxicity, expressed as a decrease in average fetal weight, occurred in rats given 1200 mg/kg/day of enalapril but did not occur when these animals were supplemented with saline. Enalapril was not teratogenic in rabbits. However, maternal and fetal toxicity occurred in some rabbits at doses of 1 mg/kg/day or more. Saline supplementation prevented the maternal and fetal toxicity seen at doses of 3 and 10 mg/kg/day, but not at 30 mg/kg/day (50 times the maximum human dose).

Radioactivity was found to cross the placenta following administration of labeled enalapril to pregnant hamsters.

There are no adequate and well-controlled studies of enalapril in pregnant women. However, data are available that show enalapril crosses the human placenta. Because the risk of fetal toxicity with the use of ACE inhibitors has not been clearly defined, VASOTEC[®] (Enalapril Maleate, MSO) should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Postmarketing experience with all ACE inhibitors thus far suggests the following with regard to pregnancy outcome. Inadvertent exposure limited to the first trimester of pregnancy has not been reported to affect fetal outcome adversely. Fetal exposure during the second and third trimesters of pregnancy has been associated with fetal and neonatal morbidity and mortality.

When ACE inhibitors are used during the later stages of pregnancy, there have been reports of hypotension and decreased renal perfusion in the newborn. Oligohydramnios in the mother has also been reported, presumably representing decreased renal function in the fetus. Infants exposed *in utero* to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion with the administration of fluids and pressors as appropriate. Problems associated with prematurity such as patent ductus arteriosus have occurred in association with maternal use of ACE inhibitors, but it is not clear whether they are related to ACE inhibition, maternal hypotension, or the underlying prematurity.

Nursing Mothers: Milk in lactating rats contains radioactivity following administration of ¹⁴C enalapril maleate. It is not known whether this drug is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised when VASOTEC is given to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Adverse Reactions: VASOTEC has been evaluated for safety in more than 10,000 patients, including over 1000 patients treated for one year or more. VASOTEC has been found to be generally well tolerated in controlled clinical trials involving 2987 patients.

HYPERTENSION: The most frequent clinical adverse experiences in controlled trials were: headache (5.2%), dizziness (4.3%), and fatigue (3%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in controlled clinical trials were: diarrhea (1.4%), nausea (1.4%), rash (1.4%), cough (1.3%), orthostatic effects (1.2%), and asthenia (1.1%).

HEART FAILURE: The most frequent clinical adverse experiences in both controlled and uncontrolled trials were: dizziness (7.9%), hypotension (6.7%), orthostatic effects (2.2%), syncope (2.2%), cough (2.2%), chest pain (2.1%), and diarrhea (2.1%).

Other adverse experiences occurring in greater than 1% of patients treated with VASOTEC in both controlled and uncontrolled clinical trials were: fatigue (1.8%), headache (1.8%), abdominal pain (1.6%), asthenia (1.6%), orthostatic hypotension (1.6%), vertigo (1.6%), angina pectoris (1.5%), nausea (1.3%), vomiting (1.3%), bronchitis (1.3%), dyspnea (1.3%), urinary tract infection (1.3%), rash (1.3%), and myocardial infarction (1.2%).

Other serious clinical adverse experiences occurring since the drug was marketed or adverse experiences occurring in 0.5% to 1% of patients with hypertension or heart failure in clinical trials in order of decreasing severity within each category:

Cardiovascular: Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high-risk patients (see WARNINGS, Hypotension), cardiac arrest, pulmonary embolism and infarction, rhythm disturbances, atrial fibrillation, palpitation.

Digestive: Ileus, pancreatitis, hepatitis or cholestatic jaundice, melena, anorexia, dyspepsia, constipation, glossitis.

Nervous/Psychiatric: Depression, confusion, alaxia, somnolence, insomnia, nervousness, paresthesia.

Urogenital: Renal failure, oliguria, renal dysfunction (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

Respiratory: Bronchospasm, rhinorrhea, asthma, upper respiratory infection.

Skin: Herpes zoster, pruritus, alopecia, flushing, photosensitivity.

Other: Vasculitis, muscle cramps, hyperhidrosis, impotence, blurred vision, taste alteration, linitis.

A symptom complex has been reported which may include fever, myalgia, and arthralgia; an elevated erythrocyte sedimentation rate may be present. Rash or other dermatologic manifestations may occur. These symptoms have disappeared after discontinuation of therapy.

Angioedema: Angioedema has been reported in patients receiving VASOTEC (0.2%). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis, and/or larynx occurs, treatment with VASOTEC should be discontinued and appropriate therapy instituted immediately (See WARNINGS.)

Hypotension: In the hypertensive patients, hypotension occurred in 0.9% and syncope occurred in 0.5% of patients following the initial dose or during extended therapy. Hypotension or syncope was a cause for discontinuation of therapy in 0.1% of hypertensive patients. In heart failure patients, hypotension occurred in 6.7% and syncope occurred in 2.2% of patients. Hypotension or syncope was a cause for discontinuation of therapy in 1.9% of patients with heart failure. (See WARNINGS.)

Clinical Laboratory Test Findings:

Serum Electrolytes: Hyperkalemia (see PRECAUTIONS), hyponatremia

Creatinine, Blood Urea Nitrogen: In controlled clinical trials, minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.2% of patients with essential hypertension treated with VASOTEC alone. Increases are more likely to occur in patients receiving concomitant diuretics or in patients with renal artery stenosis. (See PRECAUTIONS.) In patients with heart failure who were also receiving diuretics with or without digitalis, increases in blood urea nitrogen or serum creatinine, usually reversible upon discontinuation of VASOTEC and/or other concomitant diuretic therapy, were observed in about 11% of patients. Increases in blood urea nitrogen or creatinine were a cause for discontinuation in 1.2% of patients.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g % and 1.0 vol %, respectively) occur frequently in either hypertension or heart failure patients treated with VASOTEC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1% of patients discontinued therapy due to anemia.

Other (Causal Relationship Unknown): In marketing experience, rare cases of neutropenia, thrombocytopenia, and bone marrow depression have been reported.

Liver Function Tests: Elevations of liver enzymes and/or serum bilirubin have occurred.

Dosage and Administration: **Hypertension:** In patients who are currently being treated with a diuretic, symptomatic hypotension occasionally may occur following the initial dose of VASOTEC. The diuretic should, if possible, be discontinued for two to three days before beginning therapy with VASOTEC to reduce the likelihood of hypotension. (See WARNINGS.) If the patient's blood pressure is not controlled with VASOTEC alone, diuretic therapy may be resumed.

If the diuretic cannot be discontinued, an initial dose of 2.5 mg should be used under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.)

The recommended initial dose in patients not on diuretics is 5 mg once a day. Dosage should be adjusted according to blood pressure response. The usual dosage range is 10 to 40 mg per day administered in a single dose or in two divided doses. In some patients treated once daily the antihypertensive effect may diminish toward the end of the dosing interval. In such patients, an increase in dosage or twice-daily administration should be considered. If blood pressure is not controlled with VASOTEC alone, a diuretic may be added.

Concomitant administration of VASOTEC with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases of serum potassium (see PRECAUTIONS).

Dosage Adjustment in Hypertensive Patients with Renal Impairment: The usual dose of enalapril is recommended for patients with a creatinine clearance >30 mL/min (serum creatinine of up to approximately 3 mg/dL). For patients with creatinine clearance ≤30 mL/min (serum creatinine ≥3 mg/dL), the first dose is 2.5 mg once daily. The dosage may be titrated upward until blood pressure is controlled or to a maximum of 40 mg daily.

Heart Failure: VASOTEC is indicated as adjunctive therapy with diuretics and digitalis. The recommended starting dose is 2.5 mg once or twice daily. After the initial dose of VASOTEC, the patient should be observed under medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS and PRECAUTIONS, Drug Interactions.) If possible, the dose of the diuretic should be reduced, which may diminish the likelihood of hypotension. The appearance of hypotension after the initial dose of VASOTEC does not preclude subsequent careful dose titration with the drug, following effective management of the hypotension. The usual therapeutic dosing range for the treatment of heart failure is 5 to 20 mg daily given in two divided doses. The maximum daily dose is 40 mg. Once-daily dosing has been effective in a controlled study, but nearly all patients in this study were given 40 mg, the maximum recommended daily dose, and there has been much more experience with twice-daily dosing. In addition, in a placebo-controlled study which demonstrated reduced mortality in patients with severe heart failure (NYHA Class IV), patients were treated with 2.5 to 40 mg per day of VASOTEC, almost always administered in two divided doses. (See CLINICAL PHARMACOLOGY, Pharmacodynamics and Clinical Effects.) Dosage may be adjusted depending upon clinical or hemodynamic response. (See WARNINGS.)

Dosage Adjustment in Heart Failure Patients with Renal Impairment or Hyponatremia: In heart failure patients with hyponatremia (serum sodium <130 mEq/L) or with serum creatinine >1.6 mg/dL, therapy should be initiated at 2.5 mg daily under close medical supervision. (See DOSAGE AND ADMINISTRATION, Heart Failure, WARNINGS, and PRECAUTIONS, Drug Interactions.) The dose may be increased to 2.5 mg b.i.d., then 5 mg b.i.d. and higher as needed, usually at intervals of four days or more, if at the time of dosage adjustment there is not excessive hypotension or significant deterioration of renal function. The maximum daily dose is 40 mg.

For more detailed information, consult your MSD Representative or see Prescribing Information. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, PA 19380. JGV518A(3/81)

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IT MAY CHANGE THE WAY YOUR PATIENTS FEEL ON ANTIHYPERTENSIVE THERAPY

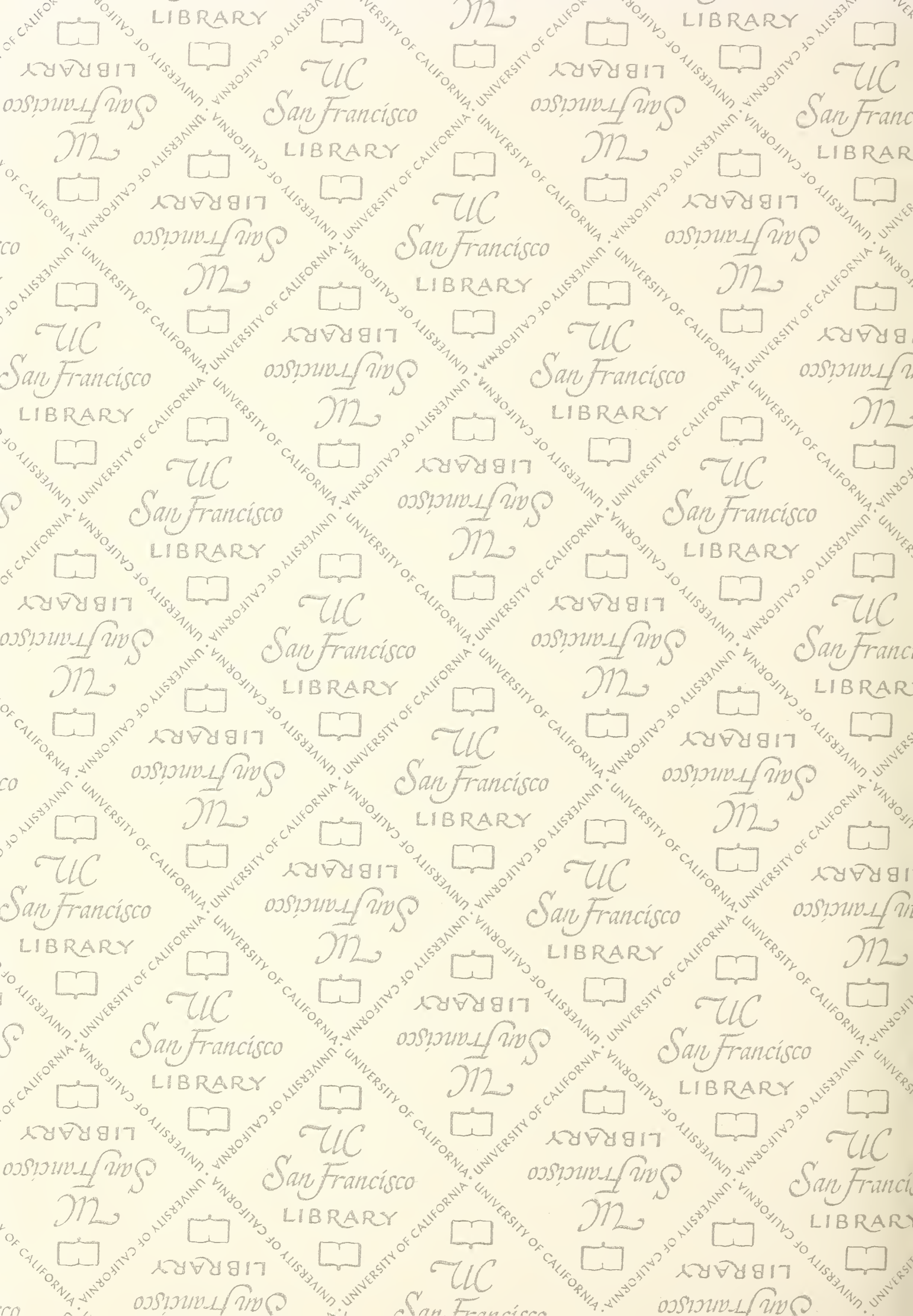


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